

**Part B**[Back To Content Page](#)**1 Vision, Mission and Programme Educational Objectives (100)****Total Marks : 100.00****1.1 Vision and Mission (5)****Total Marks : 5.00**

## 1.1.1 State the Vision and Mission of the institute and department (1)

Institute Marks : 1.00

(List and articulate the vision and mission statements of the institute and department)

**Vision of the Institute**

To be among the best of the institutions for engineers and technologists with attitudes, skills and knowledge and to become an epicentre of creative solutions.

**Mission of the Institute**

To achieve and impart quality education with an emphasis on practical skills and social relevance.

**Vision of the Department**

To impart technical knowledge and skills required to succeed in life, career and help society to achieve self sufficiency.

**Mission of the Department**

- To become an internationally leading department for higher learning.
- To build upon the culture and values of universal science and contemporary education.
- To be a center of research and education generating knowledge and technologies which lay groundwork in shaping the future in the fields of electrical and electronics engineering.
- To develop partnership with industrial, R&D and government agencies and actively participate in conferences, technical and community activities.

## 1.1.2 Indicate how and where the Vision and Mission are published and disseminated (2)

Institute Marks : 2.00

(Describe in which media (e.g. websites, curricula books) the vision and mission are published and how these are disseminated among stakeholders)

Every effort is made to ensure the Vision, Mission and PEOs are communicated effectively to all stakeholders namely students, faculty, parents, industry, regulating authority, alumni and management etc.

Presently Vision, Mission and PEOs are published and disseminated through the following methods:

**Print Media:** College Diary, College Brochures

**Electronic Media:** College/Departmental Website, Display Monitors

**Display Boards:** Flexi-Boards, Permanent Wooden Boards

**Direct Communication:** Orientation Programmes to freshers/parents/guardians, Induction Programmes to staff members

**List the stakeholders of the programme**

(List stakeholders of the programme under consideration for accreditation and articulate their relevance)

The Stake holders for the programme are

1. Students 2. Faculty 3. Parents 4. Industry 5. Alumni 6. Management

**Students:** Students seek quality environment at the Institute which includes good infrastructure, qualified faculty, conducive learning environment. Students expect that the qualification be well recognized for an employment at a reputed industry or for an admission in the best educational institution if opted for higher education or prepare one for career of own choice.

**Faculty:** Faculty acts as a facilitator for the students to achieve their goals. Faculty wants to improve their credentials and grow in profession. Faculty takes pride in associating with a good learning environment and expects results from their students for self satisfaction.

**Parents:** Parents seek quality education for their children for a better future through the institution. Parents seek better career for their wards. Parents expect that their feedback can be considered in the development of the institution.

**Industry:** In most cases industry needs to hire the best students from good institutions such that these well trained students are readily employable, trainable and contribute to their growth. Industry also sees institutions as a complementary asset to their R&D. Industry, being one of the direct beneficiary provides the necessary direction and growth plans.

**Alumni:** The Alumni take pride in their educational institution from where they graduated. The Alumni prefer to maintain traditions by guiding their juniors on approaches to get better professional growth. The present social networking sites have made better interaction between Alumni and students. The Alumni contributes to the institution at times financially and other times through technical guidance and also gives feedback for the development of the Institution.

**Management:** Management is interested to impart quality education by providing best infrastructure, qualified faculty members and latest equipments and softwares. Management is looking to attract the best students.

Articulate the process involved in defining the vision and mission of the department from the vision and mission of the institute.)

The department established the vision and mission through a consultative process involving the stakeholders (students, alumni, faculty, industry, management) considering the scope of the department and the future societal requirements.

The process to arrive at the, Vision, Mission of the department is as follows:

- This process reviews aspirations of our Institution in the light of the vision and mission some of best educational institutions running similar programmes, taking feedback from stakeholders and discussions among faculty members in the department while drafting the proposal.
- Departmental Development and Monitoring Committee (DDMC) finalizes the proposals.
- These proposals will be reviewed and ratified by the Academic Council



**Figure 1 : Process for defining Mission and Vision of the department**

**1.2 Programme Educational Objectives (15)****Total Marks : 15.00**

1.2.1 Describe the Programme Educational Objectives (PEOs) (2)

Institute Marks : 2.00

(List and articulate the programme educational objectives of the programme under accreditation)

**This programme is meant to prepare our students to professionally thrive and to lead. During their progression:****PEO 1:** Graduates will have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams.**PEO 2:** Graduates will be able to acquire, use and develop skills as required for effective professional practices.**PEO 3:** Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society.**PEO 4:** Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.

1.2.2 State how and where the PEOs are published and disseminated (2)

Institute Marks : 2.00

(Describe in which media (e.g. websites, curricula books) the PEOs are published and how these are disseminated among stakeholders)

Institute makes every effort to ensure Department PEOs are communicated effectively to all stakeholders namely students, faculty, parents, industry, alumni and management etc.

Presently PEOs are published and disseminated through the following methods:

**Print Media:** Departmental Brochure/Booklets, Course Registers**Electronic Media:** College/Departmental Website, Display Monitors**Display Boards:** Notice Boards**Direct Communication:** Orientation Programmes to freshers/parents, Induction Programmes to staff members

1.2.3 List the stakeholders of the programme (1)

Institute Marks : 1.00

(List stakeholders of the programme under consideration for accreditation and articulate their relevance)

The Stake holders for the programme are

1. Students 2. Faculty 3. Parents 4. Industry 5. Alumni 6. Management

**Students:** Students seek quality environment at the Institute which includes good infrastructure, qualified faculty, conducive learning environment. Students expect that the qualification be well recognized for an employment at a reputed industry or for an admission in the best educational institution if opted for higher education or prepare one for career of own choice.

**Faculty:** Faculty acts as a facilitator for the students to achieve their goals. Faculty wants to improve their credentials and grow in profession. Faculty takes pride in associating with a good learning environment and expects results from their students for self satisfaction.

**Parents:** Parents seek quality education for their children for a better future through the institution. Parents seek better career for their wards. Parents expect that their feedback can be considered in the development of the institution.

**Industry:** In most cases industry needs to hire the best students from good institutions such that these well trained students are readily employable, trainable and contribute to their growth. Industry also sees institutions as a complementary asset to their R&D. Industry, being one of the direct beneficiary provides the necessary direction and growth plans.

**Alumni:** The Alumni take pride in their educational institution from where they graduated. The Alumni prefer to maintain traditions by guiding their juniors on approaches to get better professional growth. The present social networking sites have made better interaction between Alumni and students. The Alumni contributes to the institution at times financially and other times through technical guidance and also gives feedback for the development of the Institution.

**Management:** Management is interested to impart quality education by providing best infrastructure, qualified faculty members and latest equipments and softwares. Management is looking to attract the best students.

1.2.4 State the process for establishing the PEOs (5)

Institute Marks : 5.00

(Describe the process that periodically documents and demonstrates that the PEOs are based on the needs of the programme's various stakeholders. )

We draw upon the inputs from stake holders typically the faculty, alumni, industry, professional bodies input to formulate our PEOs.

**Faculty:** The faculty members of the department are one of the key stake holders empowered to evaluate the feedback received from all other stake holders, proposing improvements in the curriculum, the outcomes and objectives, and in implementing any ratified changes. All changes in the curriculum are initiated by the faculty. Additionally, all the faculty members continually interact with all of the other stakeholders, allowing for the opportunities to receive, apart from formal, the informal feedback also into the process.

**Alumni:** The Alumni provides vital inputs for drafting and review our PEOs. The inquiry includes opinion on the current courses, its shortfall, suggestive changes to be considered in the revising curriculum, their success in their careers and the suitability of the preparation attributed to the curriculum they were tutored in, any advice they have to give to the current students, and what they have to do for succeeding in their careers.

Regular input from alumni is obtained via the following interactions:

**Surveys:** Formatted Survey data is utilized to gather comprehensive information for scrutiny and analysis.

**Alumni visits:** Formal and informal visits by the alumni gives scope for direct personal interaction, discussions and also gives an opportunity to collect and record information required for improving the programme based on their professional experiences.

**Employers:** Input from employers plays a vital role in the formulation and review of the PEOs which reflects on the success and relevance of the designed courses. Employers are at the forefront of the practice of the profession; hence their feedback is important. They give us early indications of changing or new trends in the profession. The information is gathered from employers using both formal surveys and various informal interactions. In such interactions, employers are inquired about their views on the needs and direction of growth of the domain and correspondingly what the goals should be in educating the students.

Regular input from employers is obtained via the following interactions:

**Surveys:** Industry is directly or indirectly interacted with, during institutional visits for guest lectures, workshops, seminars, placement drives or for any other informal interaction and the opportunity is utilized to fill in the Survey Form designed for formulating PEOs.

**Tours:** Departments regularly arrange tours to industries as part of their courses education processes. Discussions with the industries, and the faculty visitors help gain additional information on the current needs of industry with regard to our graduates, and thereby contribute the understanding needed to formulate or revise our PEOs.

**Professional Bodies:** Professional Bodies like CII, NASSCOM periodically express the status of industry which are noted and utilized during formulating or reviewing the PEOs.

#### **The PEOs are established through the following steps:**

**Step 1:** Vision and Mission of the Institute / Department is taken as the basis to interact with all the key stake holders.

**Step 2:** All documents relating to the Programme and the department are reviewed. These include instructional materials which are collected for all the courses and reviewed. The Outcomes in terms of courses are listed for the programme and the Graduate attributes are taken into account apart from the information collected from Alumni in terms of career achievements, contribution to society, ethical practices and intellectual contributions.

**Step 3:** Program Coordinator consults the key stakeholders in the light of the current status of the institutes teaching learning environment, student and faculty quality and infrastructure. Feedback from prospective employers and current employers of the alumni are collected.

**Step 4:** Formation of a body of members functioning as a committee i.e., Programme Assessment Committee, which collects, reviews and recommends within the guidelines defined for the formulation of the PEOs. The Programme Coordinator summarizes their views in consultation with the Course and Module coordinators and submits them to the Board of Study of the programme. The Department Advisory Board /DDMC, is also part of the activity. The recommendations of the Programme Assessment Committee are considered.

**Step 5:** The minutes of all the meetings is recorded and the actions are initiated.

**Step 6:** The established PEOs are suggested by Board of Studies are approved by the Academic Council.

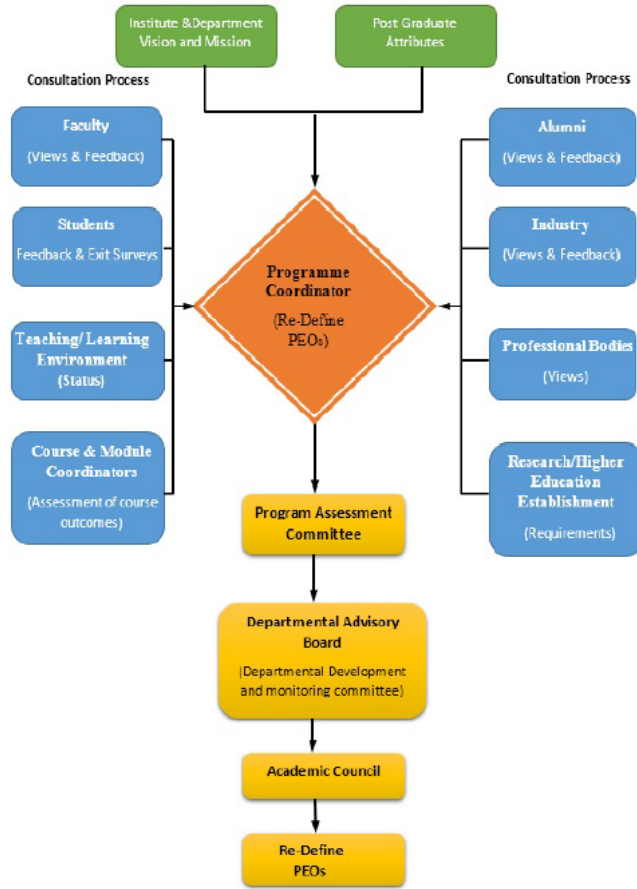


Figure 2: The process of establishing PEOs

1.2.5 Establish consistency of the PEOs with the Mission of the institute (5)

Institute Marks : 5.00

(Describe how the Programme Educational Objectives are consistent with the Mission of the department.)

The PEOs are consistent with the Mission of Department as described by mapping wherein it gives evidence on the agreement between GRIET Mission and the EEE Program Educational Objectives. The EEE-PEOs reflect the expected accomplishments of the graduates a few years after their graduation. These objectives are consistent with the GRIET Mission statement as is evident from the statement above.

By educating students in Electrical and Electronics Engineering, they are being moulded for careers in professional practice, leadership and by providing them with a broad based education including communication and life-long learning skills. This also develops and strengthens their ability to solve practical problems of social relevance, for civic contribution as well as professional practice.

These Program Educational Objectives also subsume Program Outcomes which are entirely consistent with the NBA Criteria (a)-(l). Therefore, our Program Educational Objectives are deemed to be consistent with the NBA Criteria for Accrediting Engineering Programs.

PEOs	Mission of department			
	Higher Learning	Contemporary Education	Technical knowledge	Research
PEO 1: Graduates will have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams	H	H	H	H
PEO 2: Graduates will be able to acquire, use and develop skills as required for effective professional practices	H	H	H	M
PEO 3: Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society	H	M	H	M
PEO 4: Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.	H	M	H	H

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) If there is no correlation, put “-”

**1.3 Achievement of Programme Educational Objectives (30)****Total Marks : 30.00**

1.3.1 Justify the academic factors involved in achievement of the PEOs (15)

Institute Marks : 15.00

(Describe the broad curricular components that contribute towards the attainment of the Programme Educational Objectives.)

The following are the academic factors involved in the achievement of the PEOs:

Course Component	Curriculum Content (% of total number of credits of the programme )	Total number of contact hours	Total number of credits
Basic Sciences	13.5	40	27
Engineering Sciences	11.5	35	23
Humanities and Social Sciences	6	17	12
Program Core	52	152	104
Program Electives	7	18	14
Open Electives	2	5	4
Project(s)	6	12	12
Internships/Seminars	1	4	2
Any other (Please specify)	1	4	2
<b>Total number of Credits</b>			<b>200</b>

1. By introducing courses in core engineering, basic sciences, mathematics, management, allied engineering and elective courses, seminars and projects that form the programme components, which contribute to the attainment of the Program Educational Objectives.
2. The academic factors are decided by Academic Council and Board of Studies committees which involve university professors, Industrial experts and subject experts from the departments. These committees play main role to frame the curriculum.
3. Student participation in Internship programmes and Major Projects.
4. By conducting continuing education and professional development programmes for the faculty.
5. By effective monitoring of all systems and processes including the feedback.
6. By providing budgetary resources and modern infrastructure.
7. By developing and maintaining quality in instructions.
8. By collaborating with leading institutions and industries to achieve education goals.
9. By effectively employing appropriate technologies to enhance instructions and student learning.

1.3.2 Explain how administrative system helps in ensuring the Achievement of the PEOs (15)

Institute Marks : 15.00

(Describe the committees and their functions, working process and related regulations.)

To ensure achievement of PEOs and goals of Outcome Based Education a well structured administrative hierarchy exists in the institute. Administrative System to ensure achievement of PEOs is as follows:

1. **Course Coordinator:** Faculty who teaches common course, monitors and reviews activities related to attainment of course outcomes.
2. **Module Coordinator:** Senior Faculty Coordinates and supervises the faculty teaching a particular course in a module (group of like courses).
3. **Programme Coordinator:** Interacts and maintains liaison with key stakeholders students, faculty and administration. He conducts and interprets various surveys required to assess to POs and PEOs.

In order to monitor and ensure Outcome Based Education the Institution level committees and department level committees are created.

1. Class Coordinators Committee
2. Departmental Development and Monitoring Committee (Departmental Advisory Board)
3. Board of Studies (Programme Assessment Committee)
4. Academic Council

Committee	Chair	Members	Responsibilities
Class Coordinators Committee (CCC)	Programme coordinator	<ol style="list-style-type: none"> <li>1. Faculty designated as class coordinators,</li> <li>2. Faculty of a particular course</li> <li>3. Course and module coordinators</li> <li>4. Student representatives</li> </ol>	<ol style="list-style-type: none"> <li>1. To tap the suggestions of the students, to enhance teaching-learning process.</li> <li>2. To monitor and improve the relations and shortfalls between academics and teaching environment.</li> <li>3. Review of activities related to attainment of course outcomes</li> </ol>
Board of Studies		<ol style="list-style-type: none"> <li>1. All teaching faculty of each course/ specialization offered.</li> <li>2. Two external experts in the course concerned and nominated by the Academic Council.</li> <li>3. One expert to be nominated by the Vice-chancellor from a panel of six recommended by Principal of the institute.</li> <li>4. Not more than two persons to be co-opted for</li> </ol>	<ol style="list-style-type: none"> <li>1. To prepare, frame and modify the syllabus for the various courses keeping in view POs of the programme.</li> <li>2. Evaluates programme effectiveness and proposes continuous improvement.</li> <li>3. To suggest panel of names for appointment of examiners; and</li> </ol>

(Programme Assessment Committee)	Programme Coordinator	<p>their expert knowledge including those belonging to the concerned profession or industry.</p> <ol style="list-style-type: none"> <li>One post-graduate meritorious alumni nominated by the Principal.</li> <li>The Chairman Board of Studies may with the approval of the Principal of the Institute co-opt:</li> <li>Experts from outside the institute whenever special courses of studies are to be formulated.</li> <li>Other members of the staff of the same faculty.</li> </ol>	<p>coordinate research, teaching, extension and other academic activities in the programme / institute.</p> <ol style="list-style-type: none"> <li>To suggest new methodologies for innovative teaching and evaluation techniques and tools.</li> <li>To review implementation of institutional quality assurance in the department for improving programme.</li> <li>Guiding in evolving POs and COs based on assessment.</li> </ol>
Departmental Development and Monitoring Committee (Departmental Advisory Board)	Head of the Department	<ol style="list-style-type: none"> <li>All faculty are members- one among them will act as Secretary.</li> <li>Members may be co-opted from other programmes, University and industry as per requirement</li> </ol>	<ol style="list-style-type: none"> <li>To formalize the departmental mission and vision.</li> <li>To plan and monitor the growth of programmes of the department</li> <li>Develops and recommends new or revised PEOs.</li> <li>To ensure infrastructure, support facilities and activities to ensure for attainment of PEOs.</li> </ol>
Academic Council	Principal	<ol style="list-style-type: none"> <li>Heads of Departments</li> <li>Four faculty members other than the HODs representing the various categories (by rotation and seniority).</li> <li>Four persons including educationalists of repute, one person from the industry and engineering related to the activities of the institute, who are not in the service of the institute and nominated by the Governing Body.</li> <li>Two nominees of the parent university</li> <li>A faculty member nominated by the Principal of the institute to act as Member Secretary.</li> </ol>	<ol style="list-style-type: none"> <li>To exercise general supervision over the academic work of the institute, to give directions regarding method(s) of instruction, evaluation, research and improvements in academic standards.</li> <li>To scrutinize and approve the proposals of the Board of Studies related to programmes and their educational objectives, academic regulations, curricula, syllabi, their objectives and outcomes and modifications, instructional and evaluation arrangements, methods, procedures etc.</li> <li>To make regulations regarding the admission of students to different programs of study. <b>in</b></li> <li>To recommend to the Governing Body the proposals of institution for new programs of study.</li> <li>To recommend to the Governing Body, institution of scholarships, studentships, fellowships, prizes and medals, and to frame regulations for the award of the same.</li> <li>To advise the Governing Body on suggestion(s) pertaining to academic affairs made by it.</li> <li>To perform such other functions as may be assigned by the Governing Body.</li> </ol>

#### 1.4 Assessment of the Achievement of Programme Educational Objectives (40)

**Total Marks : 40.00**

1.4.1 Indicate tools and processes used in assessment of the attainment of the PEOs (10)

Institute Marks : 10.00

Describe the assessment process that periodically documents and demonstrates the degree to which the Programme Educational Objectives are attained. Also include information on:

a) A listing and description of the assessment processes used to gather the data upon which the evaluation of each programme educational objective is based. Examples of data collection processes may include, but are not limited to, employer surveys, graduate surveys, focus groups, industrial advisory committee meetings, or other processes that are relevant and appropriate to the programme;

b) The frequency with which these assessment processes are carried out.

The following assessment processes are used for the assessment of the achievement of the PEOs

	Method	Assessment Tool	Description
1	Direct	Oral & Written Exams	Objective, subjective, theory, practical, seminar and viva evaluation
2		Projects	Mini & Major project evaluation
3	Indirect	Student Exit Survey	Passing out students
4		Alumni Survey	Old batches of the students
5		Employer Survey	Industries which recruits
6		Industry Survey	Leading industry in the domain of particular programme

PEOs (Program Educational Objectives) relate to the career and professional accomplishments of students after they graduate from the program. Consequently, assessment and evaluation of the objectives requires assessment tools that can be applied after graduation. The PEO's assessment process and methods are tabulated. However, keeping the significance of contribution of the curriculum and the assessment opportunities such as placement data and higher education entrance performance, these assessments are taken as supplementary evidence.

EEE Program Educational Objectives	Assessment Tools & Performance Criteria	Process Used in assessment		Documentation
		Assessment Cycle	Evaluation Cycle	
<b>PEO1:</b>	Placement: 70% of EEE graduates are currently employed in leading Industries.	Every year	Every year	Department & Institute

Graduates will have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams.	Alumni Survey: EEE Alumni rate the overall quality of educational experience as well as gives the insight for improving the program.	Every year	Every year	Department & Institute
<b>PEO2:</b> Graduates will be able to acquire, use and develop skills as required for effective professional practices.	Mid Examinations, Quizzicals & viva: Written mid examinations are clearly linked to learning objectives.	Twice in a semester	Every semester	Department & Institute
	Semester Examination: These help in assessing the overall development of the students, which directly link to attainment of PEOs.	Every Semester	Every Semester	Department & Institute
	Assignments, written Lab & project Reports: these are direct assessment methods which help in evaluation of PEOs	Quarterly	Quarterly	Department
<b>PEO3:</b> Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society.	Alumni Surveys: Alumni are asked to rate the quality of preparation to demonstrate abilities which they feel needed by under graduate.	Every year	Every year	Institute & Department
	Employer Survey 70% of EEE employers responding to the Employer Survey will indicate they are either very satisfied or satisfied with EEE graduates' performance	Every year	Every year	Institute & Department
<b>PEO 4:</b> Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.	Alumni Survey: One or more abilities are listed which reflect this objective. Alumni are asked to rate the quality of preparation to demonstrate each ability they feel they received from their UG education.	Every year	Every year	Department
<b>All PEOs</b>	Board of Studies: will meet annually and provide feedback to improve the quality of the program, also evaluate the senior project design teams.	Every year	Every year	Department

#### Frequency of the Assessment Processes;

Assessment Tool	Description	Assessment Cycle	Evaluation Cycle	Documentation and Maintenance
Mid Exams	Internal Evaluation	Twice in a semester	Twice in a semester	Marks are recorded in department and examination cell.
End Exams	External Evaluation	Once in a semester	Once in a semester	Result Recorded at examination cell and department
Assignments	Before Every Mid Exam	Twice in a semester	Twice in a semester	Course Register
Viva	End of the Semester	Once in a semester	Once in a semester	Lab Register
Seminars	General and Technical	Once in a semester	Once in a semester	Course Register
Lab Exams	Internal and External experimental evaluation	Once in a semester	Once in a semester	Lab record, Examination Cell
Comprehensive Viva	All courses	Once in four years	Once in four years	Examination Cell
Projects	Mini and Major project evaluation	Once in four years	Once in four years	Examination Cell
Surveys	All Stake Holders	Once in a year	Once in a year	Recorded in department



## File Name

[placement and higher studies](#)[result analysis](#)[Minutes of meeting](#)

We have introduced the Outcome based education system in full spirit in GRIET recently. Therefore it will take three more academic years to have students having experienced the learning environment as per new defined PEOs and three to five years from exit for them to experience the field of their careers. In the absence of such graduates, it is not appropriate to comment on attainment of the PEOs.

However criteria for level of attainment of PEOs have been formulated for the essential processes indicated before. The existing alumni and graduate performances and surveys are presented as a representative data for future discussions.

PEO	Assessment	Good	Average	Below Average	Attainment
PEO 1 Graduates will have a successful technical or professional careers, including supportive and leadership roles on multi disciplinary teams.	Placements	70 % above placement record	40 - 70 % placement record	Less than 50% of students selected off campus	40% placements are done in recent passed out batch.
	Performance	70% above distinctions	40-70% with distinctions	Below 40% with distinctions	73% distinctions
	Higher Education	25% above graduates pursue higher education	15-25% of graduates pursue higher education	Below 15% of graduates pursue higher education	22 % for higher education
	Alumni	Above 80% satisfied their training.	70-75% satisfied their training.	65-70% satisfied their training.	78% satisfied.
	Industry	Returned for subsequent placement drives with more intake	Returned for subsequent placement drives	Reluctant to come for placement drives	Returned for placement drives
	Employer	Highly satisfied graduates performance	Satisfied graduates performance	Not satisfied graduates performance	Highly satisfied as they repeated placement drives
PEO 2 Graduates will be able to acquire, use and develop skills as required for effective professional practices.	Alumni Survey	65% above graduates are in application development.	40-65% graduates are in application development	Below 40% graduates are in bench waiting for task	65% are in development tasks
	Employer survey	Above 60% of graduates were able to analyze societal problems	40-60% of graduates were able to analyze societal problems	Below 40% of graduates were able to analyze real time problems	60% graduates were able to analyze societal problems
PEO 3 Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society	Student Exit Survey	Above 80% graduates are satisfied with their curriculum	60-80% graduates are satisfied with their curriculum	60% below graduates are satisfied with their curriculum	Above 90% graduates are satisfied with their curriculum
	Alumni Survey	Above 80% graduates working large teams	50-80% graduates working in large teams	Below 50% graduates working in large teams	Above 80% graduates working large teams
	Employer Survey	Above 60% of graduates posses good communication abilities	50-60% of graduates posses good communication abilities	Below 50% of graduates posses good communication abilities	Above 75% of graduates posses good communication abilities
	Industry Survey	Above 70% graduates are familiar with modern tool usage	40-70% graduates are familiar with modern tool usage	40% below graduates are familiar with modern tool usage	Above 90% graduates are familiar with modern tool usage.
PEO 4 Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.	Alumni Survey	Above 50% have undergone for additional courses and qualifications.	40 -50% have undergone for additional courses and qualifications.	25-40% have undergone for additional courses and qualifications.	28% have undergone for additional courses and qualifications.
	Employer Survey	Above 70% of graduates posses good management skills	50-70% of graduates posses good management skills	Below 40% of graduates posses good management skills	Above 60% of graduates posses good management skills

## 1.5 Indicate how the PEOs have been redefining in the past (10)

Total Marks : 10.00

Institute Marks : 10.00

(Articulate with rationale how the results of the evaluation of PEOs have been used to review/redefine the PEOs)

We have introduced the Outcome Based Education system in GRIET recently. Therefore students, having experienced the learning environment as per newly defined PEOs are yet to graduate from the Institute. We have defined PEOs based on the vision and mission of institution and the department and also to suit curriculum given by the affiliating university JNTUH and used the feedback received from the stakeholders through surveys. The continuous process of assignments, direct and indirect assessments and evaluation will lead to the revision and refinement of the PEOs. We have a system to review the results of the evaluation of our outcome based education system at the end of each academic year.

Redefining of PEOs considers exit students survey, professional bodies view, alumni survey, employer survey, feedback. Department Advisory Board (DAB) consisting of the Head of the Department along with Board of Studies, Programme Coordinator prepares the action plan to improve PEOs. After receiving inputs from the internal committees Board of Studies, Academic Council will give the final approval for the necessary improvements.

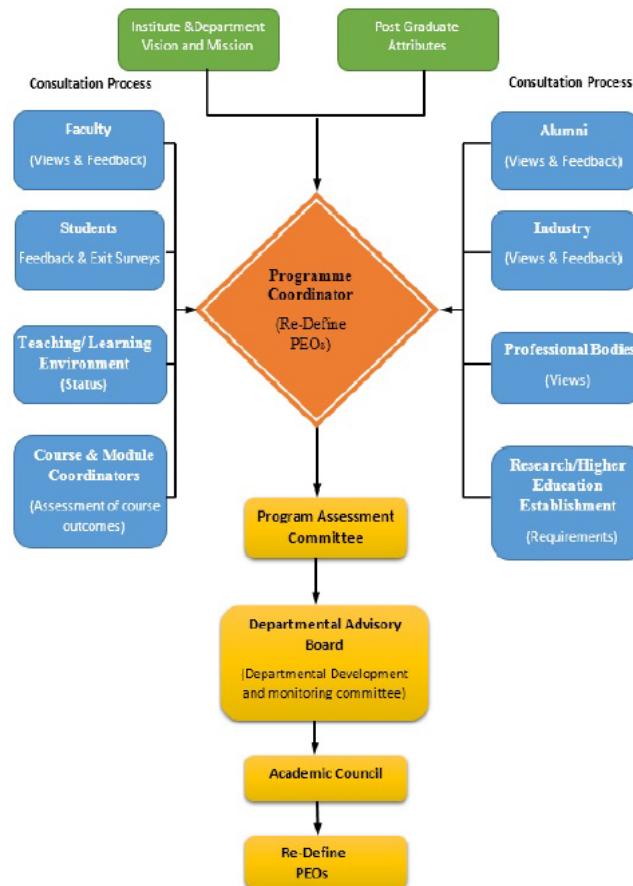


Figure 3 Redefining of Programme Educational Objectives

## 2 Programme Outcomes (225)

Total Marks : 225.00

## 2.1 Definition and Validation of Course Outcomes and Programme Outcomes (30)

Total Marks : 30.00

## 2.1.1 List the Course Outcomes(COs) and Programme Outcomes (POs) (2)

Institute Marks : 2.00

(List the course outcomes of the courses in programme curriculum and programme outcomes of the programme under accreditation)

<b>I B.Tech I Semester</b>		
<b>GR14A1001</b>	<b>LINEAR ALGEBRA AND SINGLE VARIABLE CALCULUS</b>	<ol style="list-style-type: none"> <li>1. Recognize the concepts of matrix rank to analyze linear algebraic systems</li> <li>2. Compute eigen values and vectors for engineering applications</li> <li>3. Illustrate the concepts of Mean Value Theorems to Describe the Medical Imaging and Industrial Automation.</li> <li>4. Differentiate various differential equations using elementary techniques (Exact or linear constant coefficient equations)</li> <li>5. Demonstrate model and solve linear dynamical systems</li> <li>6. Apply concepts of higher order differential equations to solve typical problems in Electrical circuits.</li> <li>7. Identify the physical phenomena of Simple harmonic motion by concepts of Differential equations.</li> </ol>
<b>GR14A1002</b>	<b>ADVANCED CALCULUS</b>	<ol style="list-style-type: none"> <li>1. Solve problems on function optimization with and without constraints</li> <li>2. Apply the knowledge of curve tracing and geometry to precisely estimate areas and volumes.</li> <li>3. Classify the concepts of applications of integration.</li> <li>4. Explain the real significance of applications of multiple integrals.</li> <li>5. Apply the knowledge of multiple integrals in solving problems in vector fields</li> <li>6. Classify the concepts of differential calculus with physical interpretation.</li> <li>7. Categorize the verification and evaluation of vector integral theorems geometrically</li> </ol>
<b>GR14A1007</b>	<b>ENGINEERING PHYSICS</b>	<ol style="list-style-type: none"> <li>1. Identify and describe various bonds between the atoms and properties of various materials.</li> <li>2. Explain the behavior of free electrons and how they are responsible for exhibition of various properties.</li> <li>3. Classify various magnetic materials and apply knowledge gained in various fields.</li> <li>4. Differentiate different dielectric materials and its utilization.</li> <li>5. Analyze why Laser light is more powerful than normal light and its applications in various fields.</li> <li>6. Demonstrate the application of optical fibers in communication.</li> <li>7. Extend the knowledge of characterization techniques to know the</li> </ol>

		composition of Nano material.
GR14A1009	COMPUTER PROGRAMMING	1. Comprehend the basic concepts of computers, software, hardware, generations of programming languages, program development steps, algorithms, flowcharts.
		2. Comprehend the pre-programming C-concepts such as C-Tokens like keywords, data-types.
		3. Comprehend the concepts of operators, evaluation of expressions, I/O statements.
		4. Analyze the concepts of decision making such as branching, looping, unconditional jumping.
		5. Comprehend the C-language features such as arrays, strings, functions, pointers, structures, files.
		6. Design and develop C-Programs for various general problems and their implementation.
		7. Design and develop C-Programs for Complex problems independently
GR14A1005	ENGLISH	1. Identify and compare a wide range of text to know the importance of lifelong learning.
		2. Relate and develop English language proficiency with an emphasis on LSRW skills.
		3. Infer and interrelate academic subjects through English language skills for better understanding of technical intricacies.
		4. Organize ideas appropriately and fluently in social and professional areas.
		5. Implement English language skills to meet the corporate needs.
		6. Translate and demonstrate self in social and professional situations.
		7. Distinguish and construct literary sense through wide range of selections from various genres.
GR14A1019	FUNDAMENTALS OF ELECTRONICS AND ENGINEERING	1. Comprehend the fundamentals of construction of the semiconducting materials, fabrication of elements working principles and operation of semiconductors.
		2. Analyze the concept with the working principles of forward and reverse bias characteristics.
		3. Demonstrate the basic skills in design and analysis of filter circuits, biasing circuits.
		4. Discriminate the principle, construction and operation BJTs, FETs and MOSFETs
		5. Interpret the different techniques for FET and MOSFET circuit designs
		6. Interpret the performance and analysis-volt amp characteristics of a BJT and FET amplifiers.
		7. Analyze the small signal low frequency Transistor amplifiers using h-parameters.
		1. Design and model different prototypes in the Carpentry trade such as Cross lap joint, Dove tail joint
		2. Demonstrate straight fit, V-fit by making models.
		3. Construct various basic prototypes in the trade of tin smithy such as rectangular tray and open scoop etc.

GR14A1025	ENGINEERING WORKSHOP	<p>4. Analyze to make in the trade of Tin Smithy such as Rectangular tray and Open Cylinder</p> <p>5. Apply various House Wiring techniques such as Connecting one lamp with one switch,</p> <p>6. Develop various basic house wiring techniques such as two lamps with one switch, Connecting a Fluorescent tube, Series Wiring, Go down wiring</p> <p>7. Demonstrate to develop various basic prototypes in the trade of Welding such as Lap joint, Lap Tee joint, Butt joint and Corner joint</p>
GR14A1027	COMPUTER PROGRAMMING LAB	<p>1. Analyze and debug a given program</p> <p>2. Use basic concepts, decision making and looping and c library functions for program development.</p> <p>3. Develop programs using arrays and strings.</p> <p>4. Illustrate recursive and non recursive programming approaches.</p> <p>5. Apply concepts of pointers and dynamic memory allocation for program development.</p> <p>6. Apply fundamental, derived or user defined data types for problem solving.</p> <p>7. Experiment files operations and demonstrates command line arguments.</p>
GR14A1029	ENGINEERING PHYSICS LAB	<p>1. Identify the usage of CRO, digital multi meter to record various physical quantities.</p> <p>2. Distinguish the characteristics and behavior of dielectric materials in a practical manner.</p> <p>3. Calculate losses in optical fiber and interpret them to the optical communication systems.</p> <p>4. Quantify the type of semiconductor and measurement of energy gap in a semiconductor.</p> <p>5. Investigate the properties of light like interference and diffraction through experimentation.</p> <p>6. Examine the behavior of magnetic materials with the help of graph.</p> <p>7. Analyze the characteristics of light emitting diodes for their optimum utilization.</p>
<b>I B.Tech II Semester</b>		
GR14A1003	TRANSFORM CALCULUS AND FOURIER SERIES	<p>1. Calculate definite integral values using Beta and Gamma Functions</p> <p>2. Develop the skill of evaluating Laplace and inverse Laplace transform to solve linear systems under initial and boundary conditions</p> <p>3. Illustrate the concepts of Laplace Transform to find the solutions of physical problems such as Electrical circuits.</p> <p>4. Interpret the Fourier series and Fourier transform in the context of signals and systems.</p> <p>5. Solve difference equations by Z-Transform.</p> <p>6. Formulate Partial differential equations by eliminating arbitrary functions and arbitrary constants.</p> <p>7. Compile the solution of Boundary value problems (PDE) by Fourier Transform Method.</p>
		<p>1. Develop the skill of determining approximate solutions to problems having no analytical Solutions in different contexts</p> <p>2. Solve problems related to cubic spline fitting and approximation of functions using B-splines and least squares</p> <p>3. Develop the skill of finding</p>

GR14A1004	NUMERICAL METHODS	<p>approximate solutions to problems arising in linear differential Equations</p> <p>4. Identify how the numerical methods play a vital role in many areas in engineering for example Dynamics, elasticity, heat transfer, electromagnetic theory and quantum mechanics.</p> <p>5. Interpret the mathematical results in physical or other terms to see what it practically means and implies.</p> <p>6. Explain the concept of interpolation is useful in predicting future out comes base on the present knowledge.</p> <p>7. Solve the model by selecting and applying a suitable mathematical method.</p>
GR14A1008	ENGINEERING CHEMISTRY	<p>1. Analyse water for the industry required specifications.</p> <p>2. Comprehend the fundamental principles of electrochemistry for energy production and corrosion Prevention.</p> <p>3. Identify the origin of different types of engineering materials used in modern technology.</p> <p>4. Identify new materials for novel applications.</p> <p>5. Develop the skills required for synthesis and analysis of materials.</p> <p>6. Relate the structure of materials to their properties and applications.</p> <p>7. Illustrate the processing of fossil fuels for the effective utilization of chemical energy and the necessity of sustainable, environmentally-friendly energy sources like solar energy.</p>
GR14A1010	DATA STRUCTURES	<p>1. Classify and infer various data structures.</p> <p>2. Demonstrate operations like insert, delete, search and display of various data structures.</p> <p>3. Exemplify and experiment applications of various data structures.</p> <p>4. List applications of data structures in real time environments.</p> <p>5. Compare and contrast static and dynamic data structure implementations.</p> <p>6. Demonstrate different methods of traversing trees and construct trees from traversals.</p> <p>7. Implement searching and sorting techniques and analyze their performance.</p>
GR14A1023	ENGINEERING GRAPHICS	<p>1. Demonstrate different types of lines, the use of different types of pencils and drafter to represent</p> <p>2. Illustrate the basic drawing techniques, conic sections, cycloid curves, involutes and engineering</p> <p>3. Comprehend the basic concept of principle of planes of projections in front view and top view.</p> <p>4. Implement the orthographic projections of points, lines, planes and solids</p> <p>5. Analyze the structure which was hypostatically designed ex: development of surfaces, section of</p> <p>6. Explain the logic to convert pictorial vies to orthographic projections and orthographic projections to</p> <p>7. Evaluate conversions of isometric views to orthographic views helps in inventing new machinery.</p>
		<p>1. Comprehend the basics of Electrical Engineering and practical implementation of Electrical fundamentals.</p> <p>2. Illustrate applications of commonly used electric machinery.</p> <p>3. Identify the methods for numerical solutions to fundamental electrical engineering.</p> <p>4. Apply the basic principles involved</p>

GR14A1018	<b>BASIC ELECTRICAL ENGINEERING</b>	<p>Apply the basic principles involved in electrical engineering concepts.</p> <p>5. Analyze the practical methods of basic house wiring.</p> <p>6. Identify methods to solve AC circuits.</p> <p>7. Comprehend basics of electric machines like induction motors, generators, transformers etc. used in industries.</p>
GR14A1024	<b>BUSINESS COMMUNICATION AND SOFT SKILLS</b>	<p>1. Interpret and categorize the role and importance of various forms of communication skills.</p> <p>2. Apply and relate verbal and non-verbal communication with reference to professional contexts.</p> <p>3. Appraise professional responsibilities in an analytical manner</p> <p>4. Plan and organize the activity of sequencing ideas in an efficacious style.</p> <p>5. Evaluate and illustrate a neutral and correct form of English.</p> <p>6. Distinguish and prioritize behavior in formal situations.</p> <p>7. Combine business communication skills &amp; soft skills to meet the requirement of corporate communication.</p>
GR14A1026	<b>IT WORKSHOP</b>	<p>1. Recognize different peripherals and install different system and application softwares.</p> <p>2. Analyze and use of web browsers and related tools for information extraction.</p> <p>3. Create different documents, presentations and spreadsheet applications.</p> <p>4. Recognize different network devices and their usage and identify and use different cables.</p> <p>5. Explore the internet for information extraction and other innovative applications.</p> <p>6. Design a static webpage.</p> <p>7. Design and develop Database.</p>
GR14A1030	<b>ENGINEERING CHEMISTRY LAB</b>	<p>1. Perform analysis of water to the required industrial standards.</p> <p>2. Apply the redox and acid-base titrations for analysing materials used in routine usage like cement, coal, acid in lead acid battery, etc.,</p> <p>3. Develop the skills required for assessing the quality of materials used in industries.</p> <p>4. Identify novel ways of instrumental methods of analysis.</p> <p>5. Identify the correlation between the measured property and the corresponding application.</p> <p>6. Comprehend scientific method of designing experiment and learn the skill necessary to perform it.</p> <p>7. Illustrate how to innovate to design alternative energy sources utilizing chemistry for sustainable environment for future generations</p>

GR14A2104	<b>Managerial Economics and Financial Analysis</b>	<p>1. Articulate of about management role in the development of organization.</p> <p>2. Able to examine critical expression of the various economical forces.</p> <p>3. Able to discuss Elasticity of demand and able to demand Forecasting</p> <p>4. Able to express production and cost analysis</p>
-----------	--	--

		5.Able to express capital budes
		6.Able to express Accounting and Financial Analysis
		7. Able to Express Economics of given system Model
GR14A2035	Network Theory	1.Able to articulate in working of various components of a circuit.
		2.Able to familiar with ac and dc circuits solving.
		3.Able to ready with the most important concepts like mesh and nodal analysis.
		4.Ability to Solve Circuits using Tree, Node, Branch ,Cut set ,Tie Set Methods.
		5.Ability to measure Three phase voltages and current ,active , reactive powers
		6. Ability to convert Three phase Star to Three phase Delta circuits and Vice-Versa.
		7.Ability to Express given Electrical Circuit in terms of A,B,C,D and Z,Y Parameter Model and Solve the circuits.
GR14A2034	Electromagnetic Fields	1.An ability to solve the Problems in different EM fields.
		2. An ability to design a programming to generate EM waves subjected to the conditions.
		3. Applications of EM Waves in different domains and to find the time average power density.
		4. Ability to Solve Electromagnetic Relation using Maxwell Formulae.
		5. Ability to Solve Electro Static and Magnetic to Static circuits using Basic relations.
		6. Ability to Analyse moving charges on Magnetic fields.
		7. Ability to Design circuits using Conductors and Dielectrics.
GR14A2036	DC machines and transformers	1.An ability to express energy conversion principles in DC machines & Transformers.
		2.An ability to find role of electrical machinery in simple & complex applications.
		3. Articulate importance of extensive research in electrical machines.
		4. Design real time applications.
		5. Ability to model DC Machine for given specification.
		6. Ability to draw armature winding for DC Machines.
		7. Ability to find voltages, currents, torque and speed of given machine.
GR14A2037	DC Machines Lab	1.Have knowledge of various parts of a electrical machine.
		2.Develop knowledge helpful for PhD.
		3. Ability to conduct speed control of different types of DC Motors.
		4. Ability to conduct characteristics of DC Servo Motor
		5. Ability to simulate laboratory experiments in the software.
		6. Ability to Perform test on Motor-Generator Set.
		7. Ability to find different losses in the Machines.
GR14A2038	Multisim/Networks Lab	1. Ability to design and conduct simulations and experiments.
		2.Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
		3. Ability to identify, formulate and solve engineering problems with simulation.
		4. Ability to simulate series and parallel resonance.
		5.Ability to simulate R-L,L-C for current vectors.
		6. Measurement of Three phase voltage and currents.
		7.Measurement of Reactive and Active power.
		1.An ability to express programming & simulation for engineering problems.
		2. An ability to find importance of this



GR14A2039	Matlab & LabVIEW Lab	<p>software for Lab Experimentation.</p> <p>3. Articulate importance of software's in research by simulation work.</p> <p>4. An in-depth knowledge of providing virtual instruments on LabView Environment</p> <p>5.Ability to write basic mathematical ,electrical , electronic problems in Matlab.</p> <p>6. Ability to simulate basic electrical circuit in Simulink.</p> <p>7. Ability to connect programming files with GUI Simulink.</p>
GR14A2040	Power Generation and Distribution	<p>1.Articulate power system concepts required to engineering problems</p> <p>2.Design power system components for a specified system and application.</p> <p>3. Ability to discuss various power sources for generation of power Merit/Demerits.</p> <p>4.Formulate A.C and D.C distribution networks for necessary variable calculation.</p> <p>5.Ability to calculate usage of electrical power</p> <p>6. Ability to plot the power /Energy demand in the form of graph.</p> <p>7. Ability to discuss functions of Substation.</p>
GR14A2076	Computer Organization	<p>1. An ability to identify the purpose of using different functional units in a computer system, to assemble a system, express different data types presentations.</p> <p>2. An ability to articulate how a program is executed by a processor inside a machine.</p> <p>3. An ability to use different memory devices for specific purpose, and ability to interface different I/O devices to the system.</p> <p>4. Ability to discuss purpose of multiprocessing and multiprogramming techniques.</p> <p>5.Ability to analyse the designing process of combinational and sequential circuits.</p> <p>6. Thorough knowledge about basic structure of a digital computer and be familiar with the Von Neumann architecture</p> <p>7. Ability to express arithmetic logic and shift operation in symbolic form at a register transfer level.</p>
GR14A2041	AC Machines	<p>1.An ability to find role of electrical machinery in simple &amp; complex applications.</p> <p>2. Express importance of extensive research in electrical machines.</p> <p>3.An ability to discuss purpose of multiprocessing and multiprogramming techniques.</p> <p>4. An in-depth knowledge of applying the concepts on real time applications.</p> <p>5.Ability to calculate machine variables in direct and quadrature axis form</p> <p>6.Ability to express working of single and three phase AC Machines</p>
GR14A2042	Control Systems	<p>1.An Ability to express the basic elements and structures of feedback control systems. Correlate the pole-zero configurations of transfer functions and their time-domain response to known test inputs.</p> <p>2. An Ability to apply Routh-Hurwitz criterion, Root Locus, Bode Plot and Nyquist Plot to determine the domain of stability of linear time-invariant systems .</p> <p>3.An Ability to determine the steady-state response, errors of stable control systems and design compensators to achieve the desired performance.</p> <p>4.Ability to determine the steady-state response, errors of stable control systems and design compensators to achieve the desired performance.</p> <p>5.Ability to design lead, lag, lead-lag compensators.</p> <p>6. Ability to express control system models.</p>

		<p>Ability to express control system models on state space models.</p> <p>7. Ability to express state transition matrix and calculation of variables.</p>
GR14A2043	Digital Electronics	<p>1. Manipulate Boolean expressions to create the minimum realizable expression or circuit.</p> <p>2. Translate circuit descriptions, for example truth tables or timing diagrams, into combinational logic and/or MSI device circuits.</p> <p>3. Utilize appropriate digital devices to create circuits with memory.</p> <p>4. Be able to trouble shoot and debug logic circuits.</p> <p>5. minimization of switching functions, SOP, POS forms</p> <p>6. Ability to discuss algorithm state machine model</p>
GR14A2046	Analog and Digital Electronics Lab	<p>1. An ability to design and conduct simulations and experiments.</p> <p>2. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.</p> <p>3. An ability to identify, formulate and solve engineering problems with simulation.</p> <p>4. Ability to use OP AMP as Multiplexer, Subtractor and divider</p> <p>5. Able to use OP AMP to generate sine waveform, Square wave form, Triangular wave forms.</p> <p>6. Able to use OP AMP to as analog to digital and digital to analog converter.</p> <p>7. Ability to use VHDL programs to implement Digital Electronics.</p>
GR14A2045	Control Systems Lab	<p>1. Will have a strong knowledge of MATLAB software.</p> <p>2. Will be able to do various engineering projects.</p> <p>3. Ability to formulate transfer function for given control system problems.</p> <p>4. Ability to find time response of given control system model.</p> <p>5. Plot Root Locus and Bode plots for given control system model</p> <p>6. Ability to design Lead, Lag, Lead-Lag systems in control systems</p> <p>7. Ability to design PID controllers for given control system model.</p>
GR14A2044	AC Machines Lab	<p>1. Have knowledge of various parts of a electrical machine.</p> <p>2. Develop knowledge helpful for PhD.</p> <p>3. Able to conduct open circuit/ short circuit test on transformer</p> <p>4. Ability to conduct experiments on AC Machines to find the characteristics.</p> <p>5. Able to calculate torque and speed of given Machine.</p> <p>6. Ability to perform test on synchronous Machine to find Direct and quadrature axis reactance.</p> <p>7. Ability to conduct No Load and Full load tests on transformers/Induction Motor.</p>
GR11A3078	OPAmps	<p>1. Define significance of Linear and Digital Integrated circuits.</p> <p>2. Build circuits using Linear and Digital IC's</p> <p>3. An in-depth knowledge of applying the concepts in real time applications.</p> <p>4. Ability to use OP AMP as Multiplexer, Subtractor and divider</p> <p>5. Able to use OP AMP to generate sine waveform, Square wave form, Triangular wave forms.</p> <p>6. Able to use OP AMP to as analog to digital and digital to analog converter.</p> <p>7. Ability to design combinational and sequential circuits.</p>
		<p>1. Maximize Results with Minimum Efforts.</p> <p>2. Increase the Efficiency of factors of Production.</p> <p>3. Maximize Prosperity for Employer &amp;</p>

GR14A3102	Management Science	<p>Employees.</p> <p>4.Ability to Maslow's theory of Human needs.</p> <p>5. Ability to discuss organization structures</p> <p>6.Ability to plan Operation Management.</p> <p>7.Ability to plan material and human management.</p>
GR11A3082	Power Transmission System	<p>1.To provide the students a detailed knowledge of the types of the faults existing in the distribution and transmission system.</p> <p>2. To provide the students a detailed exposure on transmission system.</p> <p>3. Ability to do calculation of resistance, Inductance and Capacitance of Transmission Lines.</p> <p>4. Able to do calculation of power system Transients.</p> <p>5. Able to discuss various factors governing the performance of Transmission Line.</p> <p>6.Ability to do calculation of sag for different types of Transmission systems.</p> <p>7.Ability to discuss construction of Underground Cables.</p>
GR11A3080	Power Electronics	<p>1.Articulate the basics of power electronic devices</p> <p>2.Express the design and control of rectifiers, inverters.</p> <p>3.Design of power electronic converters in power control applications.</p> <p>4.Ability to express characteristics of SCR,BJT,MOSFET and IGBT.</p> <p>5.Ability to express communication methods.</p> <p>6.Ability design AC voltage controller and Cyclo Converter.</p> <p>7.Ability to design Chopper circuits.</p>
GR11A3046	Electrical Measurements and Instrumentation	<p>1.Have knowledge, to demonstrate the designing and conducting experiments, to analyze and interpret data.</p> <p>2.Provides the ability to visualize and work on laboratory and multidisciplinary tasks.</p> <p>3.Measurement of R,L,C , Voltage, Current, Power factor , Power, Energy</p> <p>4.Measurement of Magnetic Circuits.</p> <p>5.Measurement uses PMMC and Moving Iron type Instruments</p> <p>6. Measurement of power using LPF and UPF methods.</p> <p>7.Ability to balance AC Bridges to find unknown values.</p>
GR11A4089	Power Semiconductor Drives	<p>1. To provide solid foundation in controlling method of different electrical appliances.</p> <p>2.Articulate power electronics applications in control of speed, torque and other components.</p> <p>3.Able to control Dc motor by Single phase converters.</p> <p>4.Able to control DC Motor by Three Phase Converters</p> <p>5.Able to discuss four quadrant operation of DC drives.</p> <p>6.Able to connect DC motors by Choppers</p> <p>7.Able to control of Induction motor through station voltage.</p>
GR11A3026	Computer Methods in Power Systems	<p>1.Able to have the knowledge and establish the connection and express differences between sequence components and symmetric and asymmetric components.</p> <p>2.Able to have a foundation in the theory and applications of protections used in distribution systems.</p> <p>3.Ability to conduct short circuit analysis</p> <p>4. Ability to conduct analysis of power system for steady state stability.</p> <p>5.Ability to conduct analysis of power system for Transient stability</p> <p>6.Ability to determine numerical load flow solution for active and reactive power.</p> <p>7. Ability to measure reactive power in Feeder.</p>
		1. Express architecture of microprocessors

GR11A2050	Microprocessors and Microcontrollers	<p>and controllers.</p> <p>2. Programming with microprocessors.</p> <p>3.Ability to program 8086,8255 and Micro processor.</p> <p>4.Ability to interface stepper motor, A/D , D/A and Keyword.</p> <p>5. Ability to program interrupts.</p> <p>6. Ability to use 8051 timers with Microprocessor.</p> <p>7.Ability to Program AVR RISC Micro controllers</p>
GR11A3077	Non-conventional sources of energy	<p>1.Articulate the conversion of solar energy into electrical energy and its applications.</p> <p>2.Express the conversion of wind energy into electrical energy and its applications.</p> <p>3. Discuss renewable energy sources and its applications..</p> <p>4.Ability to design a power system using OTEC</p> <p>5.Ability to design a power system using wave energy</p> <p>6.Ability to design a power system using Biomass</p> <p>7.Ability to design power system using Tidal energy Geo Thermal Energy.</p>
GR14A2001	Environmental Studies	<p>1.To have an idea of about clean environment.</p> <p>2.Articulate various historical, political, economic, ethical, and religious forces that have shaped and continue to shape our world.</p> <p>3.Ability to express importance of eco system.</p> <p>4.Ability to express Biodiversity and biotic resource.</p> <p>5.Ability to express natural resonance.</p> <p>6.Ability to discuss environmental pollution and control.</p> <p>7.Ability to discuss Global Environmental problems, Sustainable Future.</p>
GR11A2073	Advanced English Communication Skills Lab	<p>1.The student will be able to express the role and importance of communication kills and will lean to use various forms of communication in various professional streams.</p> <p>2.The student will be enabled to communicate one's point of view with clarity duly attributing courtesy and formality to their conveying.</p> <p>3.Ability to communicate orally and written as well.</p> <p>4.Ability to engage in debates, Group discussions, Face interviews</p> <p>5.Ability to write project, Technical reports.</p> <p>6.Ability to write formal letters.</p> <p>7.Ability to make oral presentation, Seminars, Viva confidently.</p>
GR11A3081	Power Electronics lab	<p>1.An ability to design and conduct simulations and experiments.</p> <p>2.An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.</p> <p>3.An ability to identify, formulate and solve engineering problems with simulation.</p> <p>4.Ability to simulate characteristics of SCR,MOSFET,IGBT</p> <p>5. Ability to simulate Gate firing circuits.</p> <p>6.Ability to simulate Rectifier, Chopper, Inverter and AC Voltage Controller.</p> <p>7.Ability to simulate Cyclo Converter and able to calculate harmonics.</p>
GR11A3089	Switchgear and Protection	<p>1.Student gains knowledge on different Protective Equipments for Power Systems.</p> <p>2.Know about various protective systems-</p> <p>3.Different applications of the relays, circuit breakers, grounding for different elements of power system is also discussed in the subject.</p> <p>4. Ability to discuss recovery and</p>

		<p>Restriking.</p> <p>5.Ability to express Oil circuit , Breakers , Air Blast circuit Breakers,SF6 Circuit Breaker.</p> <p>6.Abiity to identify DMT,IDMT type relays</p> <p>7.Ability to identify Rotor, Stator Faults, inter turn faults and their protection.</p>
GR11A3094	<b>Utilization of Electrical Energy</b>	<p>1.Express working of Electric Drives</p> <p>2.Articulate different types of Electric Heating and Illumination.</p> <p>3.Design Electric Traction.</p> <p>4.Able to discuss about electric Welding.</p> <p>5.Ability to discuss mechanics of Train movement.</p> <p>6. Ability to plot trapezoidal and quadrilateral speed time curves.</p> <p>7.Ability to discuss specify energy consumption.</p>
GR11A4090	<b>Power System and Operation Control</b>	<p>1.To make students express Economic operation of power system and importance of LFC control.</p> <p>2.To allow students discuss about thermal and hydro power plants operation in meeting the load demand optimally. (State and central wide installation).Also expressing importance of reactive power control through seminars.</p> <p>3. To improve student's ability in solving problems (numerical problems at present) by posing different problem models related to Economic Load Dispatch, Load Frequency Control and reactive power control.</p> <p>4.Apply their knowledge in PSOC for competitive exams like GATE, IES, and Public sector etc</p> <p>5. Ability to discuss single area load frequency control and two area load frequency control.</p> <p>6. Ability to model and design turbine and Automatic controller.</p> <p>7. Ability to express variation of frequency in the power system with varying load.</p>
GR11A4035	<b>Electrical Distribution Systems</b>	<p>1. Know different types of distributions systems and their design.</p> <p>2. Usage of protective devices and their installation with coordination.</p> <p>3.An in-depth knowledge of power factor and voltage control in Distribution systems.</p> <p>4.Ability to calculate coincidence factor, contribution factor, Loss factor.</p> <p>5.Ability to discuss design considerations of feeders.</p> <p>6.Ability to calculate radial distribution substation.</p> <p>7.Ability to express voltage control using series capacitors, AVB,AVR</p>
GR11A2054	<b>Microprocessor and Microcontrollers Lab</b>	<p>1.To familiarize with the assembly level programming.</p> <p>2. Design circuits for various applications using Microcontrollers.</p> <p>3.To provide the interfacing of external devices to the processor.</p> <p>4. in-depth knowledge of applying the concepts in real time applications.</p> <p>5. Ability to interface ADC and DAC to 8086.</p> <p>6. Ability to provide communication between 8051 and PC.</p> <p>7.Ability to use 8051 timers with Microprocessor</p>
		<p>1.Able to measure resistance,</p>

GR11A3087	<b>Senors/Measurements and Instrumentation Lab</b>	<p>capacitance, inductance, power, energy etc.</p> <p>2. Calibrate measuring instruments using software tool LabVIEW.</p> <p>3.The student can balance bridges through interfacing Lab view.</p> <p>4.The student can innovate a measurement kit using their knowledge in course.</p> <p>5. Ability to calibrate and test single phase energy meters, PMMC ammeter, Voltmeters.</p> <p>6.Ability to design a circuit with Anderson Bridge, Kelvin bridge.</p> <p>7.Abilty to calibrate LPF wattmeter by phantom load.</p>
GR11A4049	<b>HVDC Transmissions</b>	<p>1.Able to understand the importance of insulation providing for the high voltage equipments.</p> <p>2.Able to understand the different methods of breakdown mechanisms that occur on application of high voltages.</p> <p>3.Ability to discuss 6 pulse,12 pulse circuits.</p> <p>4.Ability to discuss firing angle control.</p> <p>5.Ability to control reactive power through HVDC.</p> <p>6.Ability to discuss power flow analysis in HVDC.</p> <p>7. Ability to discuss protection of HVDC.</p>
GR11A3064	<b>Industry Oriented Mini Project</b>	<p>1.The students will be in position to put their ideas and thoughts (H/W&amp;S/W) into practice to realize a product.</p> <p>2.The students may also go for the patent rights for their projects.</p> <p>3. It also helps the students to prepare technical presentation in the journals.</p> <p>4.Ability to apply engineering knowledge on developing models through simulation.</p> <p>5.Ability to design PCB circuits using relevant software to desire hardware.</p> <p>6. Ability to Analysis stability, reliability of developed projects.</p> <p>7.Ability to display the projects in various forums.</p>
GR11A4110	<b>Seminar</b>	<p>1. familiarize with the fundamentals.</p> <p>2.Familiarity in public speaking.</p> <p>3.Ability to develop required skills for technical presentation.</p> <p>4.Ability create learning environment among students.</p> <p>6.Ability to concentrate on specific topic in scientific and engineering fields.</p> <p>7.Ability to discuss new trends among group of students and facilities.</p>
GR11A4097	<b>Major Project</b>	<p>1. An ability to solve any problem the students will be in position to put their ideas and thoughts (H/W&amp;S/W) into practice to realize a product.</p> <p>2. An ability to design and develop products to get patent rights.</p> <p>3. An ability to prepare technical presentation in the journals.</p> <p>4.Ability to display the project in road shows and other forums.</p> <p>5.Ability to apply engineering knowledge in the development of innovative project.</p> <p>6.Ability to design of machine by any electrical engineering product and improve its performance.</p> <p>7.Ability to prepare documentation work monitoring modeling</p>

		simulation design and results.
<b>GR11A4018</b>	<b>Comprehensive Viva</b>	1. Ability to articulate knowledge on various fundamentals.
		2. Ability to articulate knowledge on design concepts.
		3. Ability to define engineering basics, Applications, concepts.
		4. Ability to express sufficient knowledge in selected course.
		5. Ability to respond face interview, oral presentation and oral examination
<b>Program Outcomes</b>		
a. Ability to apply knowledge of mathematics, science, and engineering.		
b. Ability to design and conduct experiments, as well as to analyze and interpret data.		
c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.		
d. Ability to function on multi-disciplinary teams.		
e. Ability to identify, formulate, and solve engineering problems.		
f. Understanding of professional and ethical responsibility.		
g. Ability to communicate effectively.		
h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.		
i. Recognition of the need for, and an ability to engage in life-long learning.		
j. Knowledge of contemporary issues.		
k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.		
l. Graduates will demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.		

2.1.2 State how and where the POs are published and disseminated (3)

Institute Marks : 3.00

(Describe in which media (e.g. websites, curricula books) the POs are published and how these are disseminated among stakeholders)

Institute makes every effort to ensure Department POs are communicated effectively to all stakeholders namely students, faculty, parents, industry, alumni and management etc.

Presently POs are published and disseminated through the following methods:

**Print Media:** Departmental Brochure/Booklets, Course Registers

**Electronic Media:** College/Departmental Website, Display Monitors

**Display Boards:** Notice Boards

**Direct Communication:** Orientation Programmes to freshers/parents, Induction Programmes to staff members

**Lab Manuals**

**Academic Regulations**

Apart from this, Program Outcomes are made reachable to all the stake holders of the program through sensitization, faculty workshops, student workshops and induction programmes

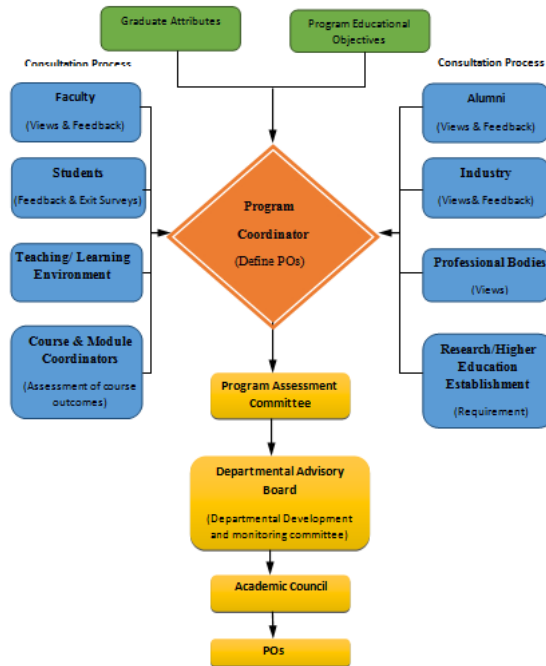
2.1.3 Indicate processes employed for defining of the POs (5)

Institute Marks : 5.00

(Describe the process that periodically documents and demonstrates that the POs are defined in alignment with the graduate attributes prescribed by the NBA.)

The POs (a to l) are as defined and developed for each program with the consultation and involvement of various stakeholders from management, industry, alumni, faculty, and students. Their interests, suggestions and contributions in defining and developing the POs are taken into account.

**Figure 4 Process for Defining POs**



2.1.4 Indicate how the defined POs are aligned to the Graduate Attributes prescribed by the NBA (10)  
 (Indicate how the POs defined for the programme are aligned with the Graduate Attributes of NBA as articulated in accreditation manual.)

Institute Marks : 10.00

POs	a	b	c	d	e	f	g	h	i	j	k	l
<b>Graduate Attributes</b>												
Engineering Knowledge	X											X
Problem Analysis		X										X
Design and Development of Solutions			X									X
Investigation of Complex Problems				X								X
Modern Tool Usage					X							X
Ethics						X						X
Environment and Sustainability							X					X
Engineer and Society								X				X
Individual and Team Work									X			X
Communication										X		X
Lifelong Learning											X	X
Project Management and Finance												X

2.1.5 Establish the correlation between the POs and the PEOs (10)  
 (Explain how the defined POs of the program correlate with the PEOs)

Institute Marks : 10.00

Program Educational Objectives (PEOs)	Program Outcomes(POs)
1. Graduates will have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams.	a. Ability to apply knowledge of mathematics, science, and engineering. b. Ability to design and conduct experiments, as well as to analyze and interpret data. e. Ability to identify, formulates, and solves engineering problems. h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context. j. Knowledge of contemporary issues. k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice. l. Graduates will demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.



<p>2. Graduates will be able to acquire, use and develop skills as required for effective professional practices.</p>		<p>c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.</p> <p>d. Ability to function on multi-disciplinary teams</p> <p>e. Ability to identify, formulates, and solves engineering problems.</p> <p>f. Understanding of professional and ethical responsibility.</p> <p>g. Ability to communicate effectively</p> <p>l. Graduates will demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.</p>											
<p>3. Graduates will be able to attain holistic education that is an essential prerequisite for being a responsible member of society.</p>		<p>e. Ability to identify, formulates, and solves engineering problems</p> <p>f. Understanding of professional and ethical responsibility.</p> <p>g. Ability to communicate effectively.</p> <p>h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.</p> <p>i. Recognition of the need for, and an ability to engage in life-long learning.</p> <p>j. Knowledge of contemporary issues.</p> <p>k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.</p> <p>l. Graduates will demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.</p>											
<p>4. Graduates will be engaged in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.</p>		<p>d. Ability to function on multi-disciplinary terms</p> <p>e. Ability to identify, formulates, and solves engineering problems.</p> <p>f. Understanding of professional and ethical responsibility.</p> <p>g. Ability to communicate effectively.</p> <p>h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.</p> <p>i. Recognition of the need for, and an ability to engage in life-long learning.</p> <p>k. Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.</p> <p>l. Graduates will demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.</p>											
<p>PEOs</p>		<p>POs</p>											
		a	b	c	d	e	f	g	h	i	j	k	l
<p>PEO1</p>	<p>PEO 1.1 To have successful technical or professional careers</p>	M	M			H			H		H		H
	<p>PEO 1.2 Supportive and leadership roles in multidisciplinary teams</p>	M	M			H			H			H	
<p>PEO3</p>	<p>To acquire, use and develop skills required for</p>	M	M	M	M	M	M	M	M	M	M	M	M

PEO2	effective professional practices				M	M	H	H	H										H
PEO3	To acquire the holistic education necessary to be a responsible member of society.							H	H	M	M	M	M	H	H				
PEO4	To engage in life-long learning to remain abreast in their profession and be leaders in our technological society.				M	M	H	M	H	H					M	H			

## 2.2 Attainment of Programme Outcomes (40)

Total Marks : 40.00

2.2.1 Illustrate how course outcomes contribute to the POs (10)

Institute Marks : 10.00

(Provide the correlation between the course outcomes and the programme outcomes. The strength of the correlation may also be indicated)

Course Code	Course Title	Course Outcomes	Programme Outcomes																
			a	b	c	d	e	f	g	h	i	j	k	l					
GR14A1001	Linear algebra and single variable calculus	Ability to apply tools of mathematics in integration, vector calculus and theory of matrices to relevant field of engineering.	H	M	-	M		H	M	H		-	M		M	H		-	
		Ability to work in multidisciplinary areas providing mathematical solutions to specific engineering problems	M	H	M	M		H		-	M	H	M		-	H	M		
		Ability to formulate and analyze mathematical problems, precisely define the key terms, and draw clear and reasonable conclusions	H	M	-	M	H		-	M		-	M		-	M	M		
		Ability to express precise mathematical language and express results verbally and in writing. They will be capable of working collaboratively to frame and solve complex problems	H	H	M	M		-	M	H		-	M	H		-			
		Ability to demonstrate foundational mathematics in calculus, linear algebra through solving problems	M	H	M		-	M		-	-	H		-	H	M			
GR14A1009, GR14A1010	C Programming, Data Structures	Develop analytical and logical skills in a language independent manner through algorithms and flow charts.	M	M	H		-		M	M	H		-	M	H	M			
		Learn programming concepts and be able to apply by converting problem to a program in C language.	H		M		M	H		M	H		-	M	H	H		-	
		Comprehend and apply various data structures	M	M	H		-	H	M		-	-	M	M	H		-		
		Extend the basic programming concept- the foundation for next level programming languages.	H	M	H		-	M		M		-	M	H		-	M		
		Design and construct hardware, compose software system, component, or process to meet desired needs within realistic constraints.	M	M	H		-	H		M	M	H		-	-	H	M		
		Distinguish and establish as practicing																	

		professionals and sustain a lifelong career in IT Industry.	H	M	M	-	H	H	M	-	-	M	H	H
GR14A1007	Engineering Physics	Ability to describe the different types of bonding, classification of solids and various types of defects in solids.	H	H	M	M	H	-	-	M	-	-	M	H
		Ability to describe the behavior of micro particles by studying Quantum mechanics and Electron theory.	H	-	M	M	H	-	M	M	-	M	M	H
		Ability to demonstrate working of semiconductors and their applications.	H	H	-	M	H	-	M	M	M	-	M	H
		Ability to express electrical and magnetic properties of materials.	H	H	M	H	M	-	M	M	-	-	M	H
		Ability to apply lasers, fiber optics in the field of communications, defense and agriculture.	H	H	M	M	H	-	-	M	M	-	M	H
		Ability to describe fundamentals of Nanotechnology and its applications in various fields.	H	H	M	M	H	-	M	M	-	M	M	H
GR14A1018,GR14A1019	Basic Electrical Engineering,Fundamentals of Electronics Engineering	Able to describe basics of diodes, transistors, resistors, inductors, capacitors, identify them and apply them to understand various circuits.	H	H	H	M	H	-	-	M	H	-	M	H
		Ability to describe the basic concepts of electrical	M	H	-	M	H	-	M	-	H	-	M	H
		Ability to analyze DC and AC circuits and applications of theorems	H	H	H	M	H	-	M	H	-	M	M	H
		Ability to discuss resonance and its impacts in AC circuits	H	M	H	M	H	M	-	M	M	-	M	-
		Ability to design electrical circuits for implementing projects	H	H	H	M	H	M	-	H	-	-	M	H
		Ability to express functioning of switches, diodes, transistors, BJTs, UJTs, FETs,SCRs.	H	H	M	M	H	-	-	M	-	M	M	H
Ability to analyze networks, rectifiers, filters to form the basis for design of appliances in engineering applications.	H	M	H	M	H	-	-	M	H	M	M	H		
GR14A1005	English	Ability to gain proficiency in all the four forms of communication.	-	M	H	M	-	M	H	M	M	-	M	M
		Able to communicate one's point of view with clarity in formal and informal situations in both written and verbal format	H	H	-	H	M	M	H	-	M	-	H	M
		Be able to express themselves clearly and appropriately in social and professional fields and strengthen professional etiquette.	H	M	-	M	-	M	H	M	M	H	-	M
		Ability to develop Social and ethical values.	H	H	-	M	-	H	H	M	M	-	H	M
		Ability to enhance attitude for observational and analytical learning.	H	M	H	M	-	M	H	M	M	-	-	M
		Ability to develop awareness in writing paragraphs, reports, formal and informal letters.	H	M	-	H	-	M	H	H	M	-	-	M
		Analyze step by step and develop algorithms to solve real world problems.	M	M	H	M	H	-	M	M	-	-	M	H

GR14A1027	<u>Computer Programming</u>	Relate and extend C programming concepts including data structures, strings, pointers, functions and programming skills to solve computational problems.	H	-	H	M	H	-	M	M	-	-	M	H
		Employ the concept of sorting and searching to solve real time problems.	M	M	H	M	H	M	-	H	-	M	M	H
		Practice programmes using various data structures viz. Stacks using, Queues, Linked Lists, Trees and Graphs.	M	H	M	M	H	-	-	M	H	-	M	H
		Implement programs and documentation in engineering applications.	M	M	H	M	H	-	-	-	M	-	M	H
GR14A1029	<u>Engineering Physics Lab</u>	Ability to connect different electrical and electronic circuits as per the requirements.	H	H	M	M	H	-	-	M	M	-	M	H
		Ability to draw the relevance between theoretical knowledge and the means to apply it in a practical manner by performing various relative experiments.	H	-	M	H	H	-	-	M	H	-	M	H
		Ability to describe characteristics and the behavior of various materials in a practical manner and gain knowledge about various communication mediums and their usage.	H	H	M	M	H	-	-	M	M	M	M	H
		Ability to analyze the results of the experiment through graphical representation.	M	H	H	M	H	-	-	M	H	-	H	M
GR14A1003	Transform Calculus and Fourier series	Ability to apply the methods of solving the differential equations, both ordinary and partial for engineering problems.	M	H	H	M	M	-	M	-	-	M	H	M
		Ability to apply Laplace Transforms, Fourier Series for engineering solutions.	M	-	H	M	M	-	M	M	-	M	H	M
		Ability to explain the importance of mathematics and its techniques to solve real life problems and provide the limitations of such techniques and the validity of the results.	M	H	M	H	M	-	M	-	M	M	H	M
		Ability to acquire mathematical knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematics	M	H	H	M	M	-	M	-	H	M	H	M
		Ability to express new mathematical questions and suggest possible software packages and/or computer programming to find solutions to these questions	M	H	H	-	M	-	-	M	-	H	M	M
GR14A1004	Numerical Methods	Ability to explain numerical methods including solving linear, non-linear equations, interpolation techniques, curve fitting to apply in modern scientific computing.	M	H	H	M	M	-	-	-	M	M	H	M
		Ability to compute errors and approximations when used as tools for problem solving	H	-	H	M	M	M	-	-	M	H	H	M
		Ability to apply raw data in a more scientific manner using concepts like Newtons, Lagrange Interpolation, Cubic Spines	M	H	H	M	M	-	M	H	-	M	H	M
		Ability to apply Least Squares Principle and hence apply it to fit a given curve	M	M	H	H	M	-	-	H	-	-	H	M
		Ability to calculate derivatives and areas when functions are given in tabular forms	M	H	H	M	M	-	H	M	-	M	H	M
		Ability to solve differential equation using Numerical Methods and obtain solution in Tabular form	M	H	H	M	M	-	M	H	-	H	M	M
		Ability to describe the basic concepts and behavior of materials including polymers,												

GR14A1008	Engineering Chemistry	nano materials for applications in engineering problems.	H	H	M	M	H	-	-	M	M	-	M	H
		Ability to apply role of chemistry in different environments and energy production.	H	H	-	M	H	-	-	M	H	-	H	M
		Ability to select lubricants for various purposes like automobile industry at different temperature and pressure.	H	H	M	M	H	-	-	M	H	-	M	H
		Ability to apply corrosion technology methods that are useful to know about the protection of metals from corrosion by various technologies.	H	M	-	M	H			H			M	H
		Ability to analyze advanced polymeric application Fiber Reinforce Plastics, conducting polymers and biodegradable polymers.	H	H	M	M	H	-	-	M	H	-	M	H
		Ability to express optical fiber communication system in the field of nano technology.	M	H	M	M	H	-	-	M	H	-	M	H
GR14A2001	Environmental Sciences	Recognize the Environment, and become sensitive to its components and its workings.	M	-	H	-	M	H	-	H	M	H	H	-
		Recognize and appreciate nature's own technology, following physical rules and establishing equilibrium. Distinguish the diversity and individual roles and contribution in maintaining equilibrium. Thus evaluate and realize the existence of natural laws.	H	-	H	M	-	M	H	H	-	H	M	M
		Recognize and identify and relate the earth's composites and material being utilized as resource by human society, its limited nature and importance.	M	-	H	M	-	H	M	H	-	-	M	M
		Identifies and relates about renewable and non-renewable resources, their importance, conservation and regeneration for the sustaining human society and nature.	M	M	H	-	-	M	H	H	-	M	H	-
		Realize and evaluates the detrimental effects of human developmental activity and is spurred to think about prevention by applying his core technical applicative skills.	M	-	H	H	M	H	-	H	M	-	H	M
		Recognize, relate and become sensitive to the effects of pollution not on humans alone, but cohabitants of the earth and will be able to contribute his learning's towards their prevention or mitigation. Recognize and relate the environmental problems their causes and remedies available for maintaining a sustainable society	H	-	H	M	M	M	-	H	-	H	M	M
		Memorizes, identify, recognize and relates the various Statute laws enforced around the world and in our country and the responsible agencies involved in monitoring the environment. Appreciates the scope of the subject or course assessing its application. Recognize the role of education, options available for contributing to sustainable development projects, understanding, causes and threats and the plan the way to a sustainable future.	M	-	H	M	-	H	M	H	-	M	M	-

GR14A1023	Engineering Graphics	Ability to describe the conventions and the methods of engineering drawing.	M	H	H	M	-	-	M	M	M	-	M	H
		Ability to demonstrate drafting practices, visualization and projection skills useful for conveying ideas, design and production of components and assemblies in engineering applications.	M	H	H	-	M	-	M	M	M	-	M	H
		Ability to perform basic sketching techniques of engineering components.	M	H	H	-	M	-	M	M	M	-	M	H
		Ability to draw orthographic projections and isometric projections of given engineering components	-	H	H	M	M	-	M	-	H	-	H	H
		Ability to increasingly use architectural and engineering scales .	M	H	H	-	M	-	M	-	H	M	H	H
		Ability to design Computer Aided Drawing and to form foundation for modern tools in engineering graphics.	-	H	H	M	-	M	-	H	H	-	H	H
GR14A1026	IT Workshop	Ability to assemble a computer and its peripherals, forming foundation for applying hardware in engineering solutions.	M	M	H	M	H	-	M	-	M	M	M	H
		Ability to analyze and use the software and internet as productivity tool with professional ethics for all engineering application.	M	H	-	M	H	-	M	H	M	-	H	M
		Ability to install different software.	M	M	H	M	H						M	H
		Ability to implement hardware and software in troubleshooting software related problems.	H	M	H	-	H	M	-	H	-	-	M	H
		Ability to explore the internet for information extraction and other innovative applications.	M	M	H	M	H	M	-	H	-	H	M	H
GR14A1030	Engineering Chemistry Lab	Ability to improve analytical skills through preparation and finding characteristics of materials used in engineering	H	H	M	M	H	-	-	M	M	-	M	H
		Ability to improve experimental skills and understanding of instrumentation in finding properties of engineering materials including lubrication oils.	H	-	M	M	H	M	-	M	-	-	M	H
		Ability to prepare rubber, aspirin and know about the viscosity of different lubricating oils.	H	H	M	M	H	-	-	M	-	M	H	M
		Ability to analyze the percentage of iron present in cement by using colorimeter.	H	-	M	M	H	-	M	M	-	-	M	H
		Ability to find conductance and EMF by using conductometer and potentiometer.	H	H	M	M	H	-	-	M	M	-	M	H
		Ability to estimate the amount of Metal ions present in a given unknown compound/ solution.	M	H	-	M	H	-	H	M	-	-	H	M
		Ability to discuss role and importance of communication skills and learn to make use of various forms of communication in their respective professional fields	M	H	-	M	-	M	H	M	M	-	H	M
		2. Ability to use communication tool to be an effective team leader or team member	H	M	H	M	-	M	H	M	M	-	-	M
		Ability to use communication tool to be an effective team leader or team member	M	-	H	H	-	M	H		M	-	-	M
		Ability to use communication modes as a tool for success in career progression.	H	M	-	M	H	M	H	M	M	-	-	M

GR14A1024	Bussiness communication and Soft skilss	Ability to present in various social and professional situations formally.	H	-	-	M	-	H		M	M	H	M	H
		Ability to analyze and share the ideas by various media of information transfer.	M	H	-	M	-	M	H	M	M	-	-	M
		Ability to design various behavioral aspects in relation to problem solving.	H	M	-	H	-	M	H	-	M	-	-	M
		Ability to describe the importance of constructive feedback for consistent self-development.	H	-	H	M	-	M	H	M	M	-	H	M
		Ability to express the functioning of digestive, respiratory, circulatory and nervous system.	H	H	M	M	-	H	H	H	-	-	H	M
GR14A1025	Engineering Workshop	Ability to design and model different prototypes in the carpentry trade such as Cross lap joint, Dove tail joint.	-	H	H	M	-	H	H	M	H	M	H	H
		Ability to design and model various basic prototypes in the trade of fitting such as Straight fit, V- fit.	H	H	H	M	-	H	-	M	H	-	H	H
		Ability to make various basic prototypes in the trade of Tin smithy such as rectangular tray, and open scoop.	-	H	H	M	-	H	M	M	H	-	H	H
		Ability to perform various basic House Wiring techniques such as connecting one lamp with one switch, connecting two lamps with one switch, connecting a fluorescent tube, Series wiring, Go down wiring.	H	H	H	M	-	H	-	M	H	-	H	H
		Ability to design and model various basic prototypes in the trade of Welding such as Lap joint, Lap Tee joint, Edge joint, Butt joint and Corner joint.	-	H	H	M	-	H	-	M	H	H	H	H
GR14A2104	Managerial Economics and Financial Analysis	1.Articulate of about management role in the development of organization.	H	M	M	-	H	-	-	H	-	M	M	M
		2. Able to examine critical expression of the various economical forces.	-	M	H	-	H	M	H	-	H	H	M	-
		3. Able to discuss Elasticity of demand and able to demand Forecasting	H	M	H	M	H	M	H	-	H	H	M	-
		4. Able to express production and cost analysis	H	M	H	-	H	M	H	-	H	H	M	M
		5.Able to express capital budes	H	M	H	H	H	M	H	M	H	H	M	-
		6.Able to express Accounting and Financial Analysis	H	-	H	M	H	M	H	-	H	H	M	-
		7. Able to Express Economics of given system Model	M	H	-	H	M	H	M	H	H	H	M	-
		1.Able to articulate in working of various components of a circuit.	H	M	-	H	-	M	H	-	M	-	-	M
		2.Able to familiar with ac and dc circuits solving.	H	-	H	M	-	M	H	M	M	-	H	M
		3.Able to ready with the most important concepts like mesh and nodal analysis.	H	H	M	M	-	H	H	H	-	-	H	M

GR14A2035	Network Theory	4.Ability to Solve Circuits using Tree, Node, Branch ,Cut set ,Tie Set Methods.	-	H	M	-	H	M	H	M	H	H		
		5.Ability to measure Three phase voltages and current ,active , reactive powers	H	H	M	-	H	-	M	H	-	H	H	
		6. Ability to convert Three phase Star to Three phase Delta circuits and Vice-Versa.	-	H	M	-	H	M	M	H	-	H	H	
		7.Ability to Express given Electrical Circuit in terms of A,B,C,D and Z,Y Parameter Model and Solve the circuits.	H	H	M	-	H	-	M	H	-	H	H	
GR14A2034	Electromagnetic Fields	1.An ability to solve the Problems in different EM fields.	-	H	M	-	H	-	M	H	H	H		
		2. An ability to design a programming to generate EM waves subjected to the conditions.	H	M	-	H	-	M	H	-	M	-	M	
		3. Applications of EM Waves in different domains and to find the time average power density.	H	-	H	M	-	M	H	M	M	-	H	M
		4. Ability to Solve Electromagnetic Relation using Maxwell Formulae.	H	H	M	M	-	H	H	H	-	-	H	M
		5. Ability to Solve Electro Static and Magnetic to Static circuits using Basic relations.	-	H	M	-	H	H	M	H	M	H	H	
		6. Ability to Analyse moving charges on Magnetic fields.	H	H	M	-	H	-	M	H	-	H	H	
		7. Ability to Design circuits using Conductors and Dielectrics.	-	H	M	-	H	M	M	H	-	H	H	
GR14A2036	DC machines and transformers	1.An ability to express energy conversion principles in DC machines & Transformers.	H	H	M	-	H	-	M	H	-	H	H	
		2.An ability to find role of electrical machinery in simple & complex applications.	-	H	M	-	H	-	M	H	H	H	H	
		3. Articulate importance of extensive research in electrical machines.	H	M	-	H	-	M	H	-	M	-	-	M
		4. Design real time applications.	H	-	H	M	-	M	H	M	M	-	H	M
		5. Ability to model DC Machine for given specification.	H	H	M	M	-	H	H	H	-	-	H	M
		6. Ability to draw armature winding for DC Machines.	-	H	M	-	H	H	M	H	M	H	H	
		7. Ability to find voltages, currents, torque and speed of given machine.	H	H	M	-	H	-	M	H	-	H	H	
		1.Have knowledge of various parts of a electrical machine.	-	H	M	-	H	M	M	H	-	H	H	
		2.Develop knowledge helpful for PhD.	H	H	M	-	H	-	M	H	-	H	H	



GR14A2037	DC Machines Lab	3. Ability to conduct speed control of different types of DC Motors.	-	H	M	-	H	-	M	H	H	H	H	
		4. Ability to conduct characteristics of DC Servo Motor	H	M	-	H	-	M	H	-	M	-	-	M
		5. Ability to simulate laboratory experiments in the software.	H	-	H	M	-	M	H	M	M	-	H	M
		6. Ability to Perform test on Motor-Generator Set.	H	H	M	M	-	H	H	H	-	-	H	M
		7. Ability to find different losses in the Machines.	H	M	-	H	-	M	H	-	M	-	-	M
GR14A2038	Multisim/Networks Lab	1. Ability to design and conduct simulations and experiments.	H	-	H	M	-	M	H	M	M	-	H	M
		2. Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	H	H	M	M	-	H	H	H	-	-	H	M
		3. Ability to identify, formulate and solve engineering problems with simulation.	-	H	M	-	H	H	M	H	M	H	H	H
		4. Ability to simulate series and parallel resonance.	H	H	M	-	H	-	M	H	-	H	H	H
		5. Ability to simulate R-L, L-C for current vectors.	-	H	M	-	H	M	M	H	-	H	H	H
		6. Measurement of Three phase voltage and currents.	H	H	M	-	H	-	M	H	-	H	H	H
		7. Measurement of Reactive and Active power.	-	H	M	-	H	-	M	H	H	H	H	H
GR14A2039	Matlab & LabVIEW Lab	1. An ability to express programming & simulation for engineering problems.	H	M	-	H	-	M	H	-	M	-	-	M
		2. An ability to find importance of this software for Lab Experimentation.	H	-	H	M	-	M	H	M	M	-	H	M
		3. Articulate importance of software's in research by simulation work.	H	H	M	M	-	H	H	H	-	-	H	M
		4. An in-depth knowledge of providing virtual instruments on LabView Environment	H	H	M	-	H	-	M	H	-	H	H	H
		5. Ability to write basic mathematical ,electrical , electronic problems in Matlab.	-	H	M	-	H	-	M	H	H	H	H	H
		6. Ability to simulate basic electrical circuit in Simulink.	H	M	-	H	-	M	H	-	M	-	-	M
		7. Ability to connect programming files with GUI Simulink.	H	-	H	M	-	M	H	M	M	-	H	M
		1. Articulate power system concepts required to engineering problems	H	H	M	M	-	H	H	H	-	-	H	M
		2. Design power system components for a specified system and application.	-	H	M	-	H	H	M	H	M	H	H	H
		3. Ability to discuss various power sources for generation of power Merit/Demerits.	H	H	M	-	H	-	M	H	-	H	H	H

GR14A2040	Power Generation and Distribution	4. Formulate A.C and D.C distribution networks for necessary variable calculation.	-	H	M	-	H	M	M	H	-	H	H	
		5. Ability to calculate usage of electrical power	H	H	M	-	H	-	M	H	-	H	H	
		6. Ability to plot the power /Energy demand in the form of graph.	-	H	M	-	H	-	M	H	H	H	H	
		7. Ability to discuss functions of Substation.	H	M	-	H	-	M	H	-	M	-	-	M
GR14A2076	Computer Organization	1. An ability to identify the purpose of using different functional units in a computer system, to assemble a system, express different data types presentations.	H	-	H	M	-	M	H	M	M	-	H	M
		2. An ability to articulate how a program is executed by a processor inside a machine.	H	H	M	M	-	H	H	H	-	-	H	M
		3. An ability to use different memory devices for specific purpose, and ability to interface different I/O devices to the system.	-	H	H	M	-	H	H	M	H	M	H	H
		4. Ability to discuss purpose of multiprocessing and multiprogramming techniques.	H	H	M	-	H	-	M	H	-	H	H	
		5. Ability to analyse the designing process of combinational and sequential circuits.	-	H	H	M	-	H	M	M	H	-	H	H
		6. Thorough knowledge about basic structure of a digital computer and be familiar with the Von Neumann architecture	H	H	M	-	H	-	M	H	-	H	H	
		7. Ability to express arithmetic logic and shift operation in symbolic form at a register transfer level.	-	H	H	M	-	H	-	M	H	H	H	H
GR14A2041	AC Machines	1. An ability to find role of electrical machinery in simple & complex applications.	H	M	-	H	-	M	H	-	M	-	-	M
		2. Express importance of extensive research in electrical machines.	H	-	H	M	-	M	H	M	M	-	H	M
		3. An ability to discuss purpose of multiprocessing and multiprogramming techniques.	H	H	M	M	-	H	H	H	-	-	H	M
		4. An in-depth knowledge of applying the concepts on real time applications.	-	H	M	-	H	H	M	H	M	H	H	
		5. Ability to calculate machine variables in direct and quadrature axis form	H	H	M	-	H	-	M	H	-	H	H	
		6. Ability to express working of single and three phase AC Machines	-	H	M	-	H	M	M	H	-	H	H	
		1. An Ability to express the basic elements and structures of feedback control systems. Correlate the pole-zero configurations of transfer functions and their time-domain response to known test inputs.	H	H	M	-	H	-	M	H	-	H	H	
		2. An Ability to apply Routh-Hurwitz criterion, Root Locus, Bode Plot and Nyquist Plot to determine the domain of stability of linear time-invariant systems .	-	H	M	-	H	-	M	H	H	H	H	
		3. An Ability to determine the steady-state response,												

GR14A2042	Control Systems	errors of stable control systems and design compensators to achieve the desired performance.	H	M	-	H	-	M	H	-	M	-	-	M
		4.Ability to determine the steady-state response, errors of stable control systems and design compensators to achieve the desired performance.	H	-	H	M	-	M	H	M	M	-	H	M
		5.Ability to design lead, lag, lead-lag compensators.	H	H	M	M	-	H	H	H	-	-	H	M
		6. Ability to express control system models on state space models.	-	H	H	M	-	H	H	M	H	M	H	H
		7. Ability to express state transition matrix and calculation of variables.	H	H	M	-	H	-	M	H	-	H	H	H
GR14A2043	Digital Electronics	1. Manipulate Boolean expressions to create the minimum realizable expression or circuit.	-	H	M	-	H	M	M	H	-	H	H	
		2. Translate circuit descriptions, for example truth tables or timing diagrams, into combinational logic and/or MSI device circuits.	H	H	M	-	H	-	M	H	-	H	H	
		3. Utilize appropriate digital devices to create circuits with memory.	H	M	-	H	-	M	H	-	M	-	-	M
		4. Be able to trouble shoot and debug logic circuits.	H	-	H	M	-	M	H	M	M	-	H	M
		5. minimization of switching functions, SOP,POS forms	H	H	M	M	-	H	H	H	-	-	H	M
		6.Ability to discuss algorithm state machine model	-	H	M	-	H	H	M	H	M	H	H	H
GR14A2046	Analog and Digital Electronics Lab	1. An ability to design and conduct simulations and experiments.	H	H	M	-	H	-	M	H	-	H	H	
		2. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	-	H	M	-	H	M	M	H	-	H	H	
		3. An ability to identify, formulate and solve engineering problems with simulation.	H	H	M	-	H	-	M	H	-	H	H	
		4. Ability to use OP AMP as Multiplexer, Subtractor and divider	-	H	M	-	H	-	M	H	H	H	H	
		5. Able to use OP AMP to generate sine waveform, Square wave form, Triangular wave forms.	H	M	-	H	-	M	H	-	M	-	-	M
		6.Able to use OP AMP to as analog to digital and digital to analog converter.	H	-	H	M	-	M	H	M	M	-	H	M
		7. Ability to use VHDL programs to implement Digital Electronics.	H	H	M	M	-	H	H	H	-	-	H	M
GR14A2045	Control Systems Lab	1. Will have a strong knowledge of MATLAB software.	-	H	M	-	H	H	M	H	M	H	H	
		2. Will be able to do various engineering projects.	H	H	M	-	H	-	M	H	-	H	H	
		3.Ability to formulate transfer function for given control system problems.	-	H	M	-	H	M	M	H	-	H	H	
		4. Ability to find time response of given control system model.	H	H	M	-	H	-	M	H	-	H	H	
		5.Plot Root Locus and Bode plots for given control system model	-	H	M	-	H	-	M	H	H	H	H	
		6.Ability to design Lead, Lag, Lead-Lag systems in control systems	H	M	-	H	-	M	H	-	M	-	-	M
		7. Ability to design PID	H	H	M	M	-	M	H	M	M	-	H	M

		controllers for given control system model.	H	H	M	M	-	H	H	H	-	-	H	M	
GR14A2044	AC Machines Lab	1. Have knowledge of various parts of a electrical machine.	H	H	M	M	-	H	H	H	-	-	H	M	
		2. Develop knowledge helpful for PhD.	-	H	H	M	-	H	H	M	H	M	H	H	
		3.Able to conduct open circuit/ short circuit test on transformer	H	H	M	M	-	H	-	M	H	-	-	H	H
		4. Ability to conduct experiments on AC Machines to find the characteristics.	-	H	H	M	-	H	M	M	H	-	-	H	H
		5. Able to calculate torque and speed of given Machine.	H	H	H	M	-	H	-	M	H	-	-	H	H
		6.Ability to perform test on synchronous Machine to find Direct and quadrature axis reactance.	-	H	H	M	-	H	-	M	H	H	H	H	H
		7.Ability to conduct No Load and Full load tests on transformers/Induction Motor.	H	M	-	H	-	M	H	-	M	-	-	-	M
GR11A3078	OPAmps	1. Define significance of Linear and Digital Integrated circuits.	H	M	-	H	-	M	H	-	M	-	-	M	
		2. Build circuits using Linear and Digital IC's	H	-	H	M	-	M	H	M	M	-	-	H	M
		3. An in-depth knowledge of applying the concepts in real time applications.	H	H	M	M	-	H	H	H	-	-	-	H	M
		4. Ability to use OP AMP as Multiplexer, Subtractor and divider	-	H	H	M	-	H	H	M	H	M	H	H	H
		5. Able to use OP AMP to generate sine waveform, Square wave form, Triangular wave forms.	H	H	H	M	-	H	-	M	H	-	-	H	H
		6.Able to use OP AMP to as analog to digital and digital to analog converter.	-	H	H	M	-	H	M	M	H	-	-	H	H
		7.Abilty to design combinational and sequential circuits.	H	H	H	M	-	H	-	M	H	-	-	H	H
GR11A3068	Management Science	1. Maximize Results with Minimum Efforts.	-	H	H	M	-	H	-	M	H	H	H	H	
		2.Increase the Efficiency of factors of Production.	H	M	-	H	-	M	H	-	M	-	-	M	
		3.Maximize Prosperity for Employer & Employees.	H	-	H	M	-	M	H	M	M	-	-	H	M
		4.Ability to Maslow's theory of Human needs.	H	H	M	M	-	H	H	H	-	-	-	H	M
		5. Ability to discuss organization structures	-	H	H	M	-	H	H	M	H	M	H	H	H
		6.Ability to plan Operation Management.	H	H	H	M	-	H	-	M	H	-	-	H	H
		7.Ability to plan material and human management.	-	H	H	M	-	H	M	M	H	-	-	H	H
GR11A3082	Power Transmission System	1.To provide the students a detailed knowledge of the types of the faults existing in the distribution and transmission system.	H	H	H	M	-	H	-	M	H	-	-	H	H
		2. To provide the students a detailed exposure on transmission system.	-	H	H	M	-	H	-	M	H	H	H	H	H
		3. Ability to do calculation of resistance, Inductance and Capacitance of Transmission Lines.	H	M	-	H	-	M	H	-	M	-	-	-	M
		4. Able to do calculation of power system Transients.	H	-	H	M	-	M	H	M	M	-	-	H	M
		5. Able to discuss various factors governing the performance of Transmission Line.	H	H	M	M	-	H	H	H	-	-	-	H	M
		6.Ability to do calculation of sag for different types of	-	H	H	M	-	H	H	M	H	M	H	H	H

		Transmission systems.		H																
		7.Ability to discuss construction of Underground Cables.	H	H	M	-	H	-	M	H	-	H	H							
GR11A3080	Power Electronics	1.Articulate the basics of power electronic devices	-	H	M	-	H	M	M	H	-	H	H							
		2.Express the design and control of rectifiers, inverters.	H	H	M	-	H	-	M	H	-	H	H							
		3.Design of power electronic converters in power control applications.	-	H	M	-	H	-	M	H	H	H	H							
		4.Ability to express characteristics of SCR,BJT,MOSFET and IGBT.	H	M	-	H	-	M	H	-	M	-	-	M						
		5.Ability to express communication methods.	H	-	H	M	-	M	H	M	M	-	H	M						
		6.Ability design AC voltage controller and Cyclo Converter.	H	H	M	M	-	H	H	H	-	-	H	M						
		7.Ability to design Chopper circuits.	-	H	M	-	H	H	M	H	M	H	H							
GR11A3046	Electrical Measurements and Instrumentation	1.Have knowledge, to demonstrate the designing and conducting experiments, to analyze and interpret data.	H	H	M	-	H	-	M	H	-	H	H							
		2.Provides the ability to visualize and work on laboratory and multidisciplinary tasks.	-	H	M	-	H	M	M	H	-	H	H							
		3.Measurement of R,L,C , Voltage, Current, Power factor , Power, Energy	H	H	M	-	H	-	M	H	-	H	H							
		4.Measurement of Magnetic Circuits.	-	H	M	-	H	-	M	H	H	H	H							
		5.Measurement uses PMMC and Moving Iron type Instruments	H	M	-	H	-	M	H	-	M	-	-	M						
		6. Measurement of power using LPF and UPF methods.	H	-	H	M	-	M	H	M	M	-	H	M						
		7.Ability to balance AC Bridges to find unknown values.	H	H	M	M	-	H	H	H	-	-	H	M						
GR11A4089	Power Semiconductor Drives	1. To provide solid foundation in controlling method of different electrical appliances.	-	H	M	-	H	H	M	H	M	H	H							
		2.Articulate power electronics applications in control of speed, torque and other components.	H	H	M	-	H	-	M	H	-	H	H							
		3.Able to control Dc motor by Single phase converters.	-	H	M	-	H	M	M	H	-	H	H							
		4.Able to control DC Motor by Three Phase Converters	H	H	M	-	H	-	M	H	-	H	H							
		5.Able to discuss four quadrant operation of DC drives.	-	H	M	-	H	-	M	H	H	H	H							
		6.Able to connect DC motors by Choppers	H	M	-	H	-	M	H	-	M	-	-	M						
		7.Able to control of Induction motor through station voltage.	H	-	H	M	-	M	H	M	M	-	H	M						
GR11A3026	Computer Methods in Power Systems	1.Able to have the knowledge and establish the connection and express differences between sequence components and symmetric and asymmetric components.	H	H	M	M	-	H	H	H	-	-	H	M						
		2.Able to have a foundation in the theory and applications of protections used in distribution systems.	-	H	M	-	H	H	M	H	M	H	H							
		3.Ability to conduct short circuit analysis	H	H	M	-	H	-	M	H	-	H	H							
		4. Ability to conduct analysis of power system for steady state stability.	-	H	M	-	H	M	M	H	-	H	H							
		5.Ability to conduct analysis of power system for Transient stability	H	H	M	-	H	-	M	H	-	H	H							
		6.Ability to determine			H	M	-	H	-	M	H	H	H							

		numerical load flow solution for active and reactive power.	-	H															
		7. Ability to measure reactive power in Feeder.	H	M	-	H	-	M	H	-	M	-	-	M					
GR11A2050	Microprocessors and Microcontrollers	1. Express architecture of microprocessors and controllers.	H	-	H	M	-	M	H	M	M	-	H	M					
		2. Programming with microprocessors.	H	H	M	M	-	H	H	H	-	-	H	M					
		3.Ability to program 8086,8255 and Micro processor.	-	H	M	M	-	H	H	M	H	M	H	H					
		4.Ability to interface stepper motor, A/D , D/A and Keyword.	H	H	M	M	-	H	-	M	H	-	H	H					
		5. Ability to program interrupts.	-	H	M	M	-	H	M	M	H	-	H	H					
		6. Ability to use 8051 timers with Microprocessor.	H	H	M	M	-	H	-	M	H	-	H	H					
		7.Ability to Program AVR RISC Micro controllers	-	H	M	M	-	H	-	M	H	H	H	H					
GR11A3077	Non-conventional sources of energy	1.Articulate the conversion of solar energy into electrical energy and its applications.	H	M	-	H	-	M	H	-	M	-	-	M					
		2.Express the conversion of wind energy into electrical energy and its applications.	H	-	H	M	-	M	H	M	M	-	H	M					
		3. Discuss renewable energy sources and its applications..	H	H	M	M	-	H	H	H	-	-	H	M					
		4.Ability to design a power system using OTEC	-	H	M	M	-	H	H	M	H	M	H	H					
		5.Ability to design a power system using wave energy	H	H	M	M	-	H	-	M	H	-	H	H					
		6.Ability to design a power system using Biomass	-	H	M	M	-	H	M	M	H	-	H	H					
		7.Ability to design power system using Tidal energy Geo Thermal Energy.	H	H	M	M	-	H	-	M	H	-	H	H					
GR11A1009	Environmental Studies	1.To have an idea of about clean environment.	-	H	M	M	-	H	-	M	H	H	H	H					
		2.Articulate various historical, political, economic, ethical, and religious forces that have shaped and continue to shape our world.	H	M	-	H	-	M	H	-	M	-	-	M					
		3.Ability to express importance of eco system.	H	-	H	M	-	M	H	M	M	-	H	M					
		4.Ability to express Biodiversity and biotic resource.	H	H	M	M	-	H	H	H	-	-	H	M					
		5.Ability to express natural resonance.	-	H	M	M	-	H	H	M	H	M	H	H					
		6.Ability to discuss environmental pollution and control.	H	H	M	M	-	H	-	M	H	-	H	H					
		7.Ability to discuss Global Environmental problems, Sustainable Future.	-	H	M	M	-	H	M	M	H	-	H	H					
GR11A2073	Advanced English Communication Skills Lab	The student will be able to express the role and importance of communication kills and will lean to use various forms of communication in various professional streams.	H	H	M	M	-	H	-	M	H	-	H	H					
		2.The student will be enabled to communicate one's point of view with clarity duly attributing courtesy and formality to their conveying.	-	H	M	M	-	H	-	M	H	H	H	H					
		3.Ability to communicate orally and written as well.	H	M	-	H	-	M	H	-	M	-	-	M					
		4.Ability to engage in debates, Group discussions, Face interviews	H	-	H	M	-	M	H	M	M	-	H	M					
		5.Ability to write project,	H	H	M	M	-	H	H	H	-	-	H	M					

		Technical reports.																		
		6.Ability to write formal letters.	-	H	M	-	H	M	H	M	H	M	H	H						
		7.Ability to make oral presentation, Seminars, Viva confidently.	H	H	M	-	H	-	M	H	-	H	H							
GR11A3081	Power Electronics and Simulations Lab	1.An ability to design and conduct simulations and experiments.	-	H	M	-	H	M	M	H	-	H	H							
		2.An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	H	H	M	-	H	-	M	H	-	H	H							
		3.An ability to identify, formulate and solve engineering problems with simulation.	-	H	M	-	H	-	M	H	H	H	H							
		4.Ability to simulate characteristics of SCR,MOSFET,IGBT	H	M	-	H	-	M	H	-	M	-	-	M						
		5. Ability to simulate Gate firing circuits.	H	-	H	M	-	M	H	M	M	-	H	M						
		6.Ability to simulate Rectifier, Chopper, Inverter and AC Voltage Controller.	H	H	M	M	-	H	H	H	-	-	H	M						
		7.Ability to simulate Cyclo Converter and able to calculate harmonics.	-	H	M	-	H	H	M	H	M	H	H							
GR11A3081	Power Electronics and Simulations Lab	1.An ability to design and conduct simulations and experiments.	-	H	M	-	H	M	M	H	-	H	H							
		2.An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	H	H	M	-	H	-	M	H	-	H	H							
		3.An ability to identify, formulate and solve engineering problems with simulation.	-	H	M	-	H	-	M	H	H	H	H							
		4.Ability to simulate characteristics of SCR,MOSFET,IGBT	H	M	-	H	-	M	H	-	M	-	-	M						
		5. Ability to simulate Gate firing circuits.	H	-	H	M	-	M	H	M	M	-	H	M						
		6.Ability to simulate Rectifier, Chopper, Inverter and AC Voltage Controller.	H	H	M	M	-	H	H	H	-	-	H	M						
		7.Ability to simulate Cyclo Converter and able to calculate harmonics.	-	H	M	-	H	H	M	H	M	H	H							
GR11A3089	Switchgear and Protection	1.Student gains knowledge on different Protective Equipments for Power Systems.	H	M	-	H	-	M	H	-	M	-	-	M	H					
		2.Know about various protective systems-	H	-	H	M	-	M	H	M	M	-	H	M	H					
		3.Different applications of the relays, circuit breakers, grounding for different elements of power system is also discussed in the subject.	H	H	M	M	-	H	H	H	-	-	H	M	H					
		4. Ability to discuss recovery and Restriking.	-	H	M	-	H	H	M	H	M	H	H	-						
		5.Ability to express Oil circuit , Breakers , Air Blast circuit Breakers,SF6 Circuit Breaker.	H	H	M	-	H	-	M	H	-	H	H	H						
		6.Ability to identify DMT,IDMT type relays	-	H	M	-	H	M	M	H	-	H	H	-						
		7.Ability to identify Rotor, Stator Faults, inter turn faults and their protection.	H	H	M	-	H	-	M	H	-	H	H	H						
		1.Express working of Electric Drives	-	H	M	-	H	-	M	H	H	H	H	-						
		2.Articulate different types of Electric Heating and Illumination.	H	M	-	H	-	M	H	-	M	-	-	M	H					
		3 Design Electric																		

GR11A3094	Utilization of Electrical Energy	3.Design Electric Traction.	H	-	H	M	-	M	H	M	M	-	H	M	H
		4.Able to discuss about electric Welding.	H	H	M	M	-	H	H	H	-	-	H	M	H
		5.Ability to discuss mechanics of Train movement.	-	H	M	-	H	H	M	H	M	H	H	-	
		6. Ability to plot trapezoidal and quadrilateral speed time curves.	H	H	M	-	H	-	M	H	-	H	H	H	
		7.Ability to discuss specify energy consumption.	-	H	M	-	H	M	M	H	-	H	H	-	
GR11A4090	Power System and Operation Control	1.To make students express Economic operation of power system and importance of LFC control.	H	H	M	-	H	-	M	H	-	H	H	H	
		2.To allow students discuss about thermal and hydro power plants operation in meeting the load demand optimally. (State and central wide installation).Also expressing importance of reactive power control through seminars.	-	H	M	-	H	-	M	H	H	H	H	-	
		3. To improve student's ability in solving problems (numerical problems at present) by posing different problem models related to Economic Load Dispatch, Load Frequency Control and reactive power control.	H	M	-	H	-	M	H	-	M	-	-	M	H
		4.Apply their knowledge in PSOC for competitive exams like GATE, IES, and Public sector etc	H	-	H	M	-	M	H	M	M	-	H	M	H
		5. Ability to discuss single area load frequency control and two area load frequency control.	H	H	M	M	-	H	H	H	-	-	H	M	H
		6. Ability to model and design turbine and Automatic controller.	-	H	M	-	H	H	M	H	M	H	H	-	
		7. Ability to express variation of frequency in the power system with varying load.	H	H	M	-	H	-	M	H	-	H	H	H	
GR11A4035	Electrical Distribution Systems	1. Know different types of distributions systems and their design.	-	H	M	-	H	M	M	H	-	H	H	-	
		2. Usage of protective devices and their installation with coordination.	H	H	M	-	H	-	M	H	-	H	H	H	
		3.An in-depth knowledge of power factor and voltage control in Distribution systems.	-	H	M	-	H	-	M	H	H	H	H	-	
		4.Ability to calculate coincidence factor, contribution factor, Loss factor.	H	M	-	H	-	M	H	-	M	-	-	M	H
		5.Ability to discuss design considerations of feeders.	H	-	H	M	-	M	H	M	M	-	H	M	H
		6.Ability to calculate radial distribution substation.	H	H	M	M	-	H	H	H	-	-	H	M	H
		7.Ability to express voltage control using series capacitors, AVB,AVR	-	H	M	-	H	H	M	H	M	H	H	-	
		1.To familiarize with the assembly level programming.	H	H	M	-	H	-	M	H	-	H	H	H	
		2. Design circuits for	-	H	M	-	H	M	M	H	-	H	H	-	



GR11A2054	Microprocessor and Microcontrollers Lab	various applications using Microcontrollers.	H																		
		3.To provide the interfacing of external devices to the processor.	H	H	M	-	H	-	M	H	-	H	H	H							
		4. in-depth knowledge of applying the concepts in real time applications.	-	H	M	-	H	-	M	H	H	H	H	H	-						
		5. Ability to interface ADC and DAC to 8086.	H	M	-	H	-	M	H	-	M	-	-	M	H						
		6. Ability to provide communication between 8051 and PC.	H	-	H	M	-	M	H	M	M	-	H	M	H						
		7.Ability to use 8051 timers with Microprocessor	H	H	M	M	-	H	H	H	-	-	H	M	H						
GR11A3087	Senors/Measurements and Instrumentation Lab	1.Able to measure resistance, capacitance, inductance, power, energy etc.	-	H	M	-	H	H	M	H	M	H	H	-							
		2. Calibrate measuring instruments using software tool LabVIEW.	H	H	M	-	H	-	M	H	-	H	H	H							
		3.The student can balance bridges through interfacing Lab view.	-	H	M	-	H	M	M	H	-	H	H	-							
		4.The student can innovate a measurement kit using their knowledge in course.	H	H	M	-	H	-	M	H	-	H	H	H							
		5. Ability to calibrate and test single phase energy meters, PMMC ammeter, Voltmeters.	-	H	M	-	H	-	M	H	H	H	H	H	-						
		6.Ability to design a circuit with Anderson Bridge, Kelvin bridge.	H	M	-	H	-	M	H	-	M	-	-	M	H						
		7.Abilty to calibrate LPF wattmeter by phantom load.	H	-	H	M	-	M	H	M	M	-	H	M	H						
GR11A4049	HVDC Transmissions	1.Able to understand the importance of insulation providing for the high voltage equipments.	H	H	M	M	-	H	H	H	-	-	H	M	H						
		2.Able to understand the different methods of breakdown mechanisms that occur on application of high voltages.	-	H	M	-	H	H	M	H	M	H	H	H	-						
		3.Ability to discuss 6 pulse,12 pulse circuits.	H	H	M	-	H	-	M	H	-	H	H	H							
		4.Ability to discuss firing angle control.	-	H	M	-	H	M	M	H	-	H	H	-							
		5.Ability to control reactive power through HVDC.	H	H	M	-	H	-	M	H	-	H	H	H							
		6.Ability to discuss power flow analysis in HVDC.	-	H	M	-	H	-	M	H	H	H	H	H	-						
		7. Ability to discuss protection of HVDC.	H	M	-	H	-	M	H	-	M	-	-	M	H						
GR11A3064	Industry Oriented Mini Project	1.The students will be in position to put their ideas and thoughts (H/W&S/W) into practice to realize a product.	-	H	M	-	H	-	M	H	H	H	H	-							
		2.The students may also go for the patent rights for their projects.	H	M	-	H	-	M	H	-	M	-	-	M	H						
		3. It also helps the students to prepare technical presentation in the journals.	H	-	H	M	-	M	H	M	M	-	H	M	H						
		4.Ability to apply engineering knowledge on developing models through simulation.	H	H	M	M	-	H	H	H	-	-	H	M	H						
		5.Ability to design PCB circuits using relevant software to desire	-	H	M	-	H	H	M	H	M	H	H	H	-						

		hardware.																
		6. Ability to Analysis stability, reliability of developed projects.	H	H	M	-	H	-	M	H	-	H	H	H				
		7.Ability to display the projects in various forums.	-	H	M	-	H	M	M	H	-	H	H	-				
GR11A4110	Seminar	1. familiarize with the fundamentals.	H	H	M	-	H	-	M	H	-	H	H	H				
		2.Familiarity in public speaking.	-	H	M	-	H	-	M	H	H	H	H	H	-			
		3.Ability to develop required skills for technical presentation.	H	M	-	H	-	M	H	-	M	-	-	M	H			
		4.Ability create learning environment among students.	H	-	H	M	-	M	H	M	M	-	H	M	H			
		6.Ability to concentrate on specific topic in scientific and engineering fields.	H	H	M	M	-	H	H	H	-	-	H	M	H			
		7.Ability to discuss new trends among group of students and facilities.	-	H	M	-	H	H	M	H	M	H	H	H	-			
GR11A4097	Major Project	1. An ability to solve any problem the students will be in position to put their ideas and thoughts (H/W&S/W) into practice to realize a product.	H	H	M	-	H	-	M	H	-	H	H	H				
		2. An ability to design and develop products to get patent rights.	-	H	M	-	H	M	M	H	-	H	H	-				
		3. An ability to prepare technical presentation in the journals.	H	H	M	-	H	-	M	H	-	H	H	H				
		4.Ability to display the project in road shows and other forums.	-	H	M	-	H	-	M	H	H	H	H	-				
		5.Ability to apply engineering knowledge in the development of innovative project.	H	M	-	H	-	M	H	-	M	-	-	M	H			
		6.Ability to design of machine by any electrical engineering product and improve its performance.	H	-	H	M	-	M	H	M	M	-	H	M	H			
		7.Ability to prepare documentation work monitoring modeling simulation design and results.	H	H	M	M	-	H	H	H	-	-	H	M	H			
GR11A4018	Comprehensive Viva	1. Ability to articulate knowledge on various fundamentals.	-	H	M	-	H	H	M	H	M	H	H	-				
		2. Ability to articulate knowledge on design concepts.	H	H	M	-	H	-	M	H	-	H	H	H				
		3.Ability to define engineering basics, Applications, concepts.	-	H	M	-	H	M	M	H	-	H	H	-				
		4.Ability to express sufficient knowledge in selected course.	-	H	M	-	H	-	M	H	H	H	H	-				
		5.Ability to respond face interview ,oral presentation and oral examination.	H	M	-	H	-	M	H	-	M	-	-	M	H			

2.2.2 Explain how modes of delivery of courses help in attainment of the POs (10)

Institute Marks : 10.00

(Describe the different course delivery methods/modes (e.g. lecture interspersed with discussion, asynchronous mode of interaction, group discussion, project etc.) used to deliver the courses and justify the effectiveness of these methods for the attainment of the POs. This may be further justified using the indirect assessment methods such as course-end surveys.)

Different delivery methods are employed with individuals and groups. Some implementation techniques, however, are common to most programs. They include the following:

**Lectures / Presentation:** These are the effective ways of achieving educational objectives and outcomes synchronously. The course objectives and outcomes could not be better achieved without these. Lectures are the best ways to get facts, make students think and get better in their attitudes. These make sure that the basic concept of the course is covered which improves the ability to design, formulate and solve the problems. Modes of delivery of lectures are PPT presentations and OHP presentations.

**Guest Lectures / Expert Lectures:** The invitation of guest speakers from various eminent institutes and industries helps the students and faculty to understand the current trends in various courses which leads to attainment of PO's. External resource persons also add value to the program, and help students to realize the link between education and the world outside along with professional responsibilities.

**Seminars / Workshops:** Department organizes seminars and workshops in topics of current relevance and interest to both students and faculty. These serve as a platform for sharing knowledge / expertise in advanced areas which results in collaborative attempt for further enhancement of the skills, techniques and modern engineering tools necessary for their engineering practice.

**Project Work:** Mini and Main Project works in the curriculum gives practical and analytical exposures to students. They can learn and apply subject knowledge while implementing project. This will empower them to work in teams, learn how to gather data and systematically arrange it in an understandable form.

**Road shows:** Road shows are organized for display of project works for peers / expert's evaluation and source of inspiration and information for others.

**Mentoring and Counseling:** Mentoring concepts are integral part of the curriculum. All faculty members play an important role in counseling and motivating the students which helps in augmenting the program. It prepares students adequately for contemporary issues.

**Educational / Industrial Tours:** Another delivery strategy includes visits and educational/ Industrial tours. Resource centers, work places and others place of interest, help to explore all opportunities that have an impact on students. It allows students to think and make realistic decisions. This has proved successful in career exploration, decision making and molding them as life- long learners.

**Certification Courses:** With technology advancing at a rapid pace, opportunities for advanced applications of software are limitless. Certification courses will update the student skills and broaden their knowledge in the course which enhances their employability.

**Research projects:** Encourage students to carry out small research projects on their own empowering them to know how to gather data and systematically arrange it in an understandable form. Involving students in research and consultancy projects handled by faculty members help the students in getting exposure to real time field problems.

**E-Resources:** Faculty provides course information and peripheral knowledge on the web so that students can asynchronously accept the same. Students are motivated to access the online video lectures and course material of reputed institutes.

#### Attainment of POs using different delivery methods

Delivery Methods	Program Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
Lectures/Presentation	X	X	X	X								
Guest Lecturers/Expert Lecturers					X	X	X					
Seminars/Workshops					X					X		X
Project Work			X	X				X	X		X	
Road Shows								X		X	X	
Mentoring and Counseling						X		X				X
Educational/Industrial Tours			X			X					X	
Certification Courses					X					X		X
Research Projects					X					X		
e-Resources		X	X	X							X	X

2.2.3 Indicate how assessment tools used to assess the impact of delivery of course/course content contribute towards the attainment of course outcomes/programme outcomes (10)

Institute Marks : 10.00

(Describe different types of course assessment and evaluation methods (both direct and indirect) in practice and their relevance towards the attainment of POs. )

The following assessment processes are used for achievement of the POs

S.No	Method	Assessment Tool	Description
1	Direct	Mid Exams	Objective, Subjective exams
2		End Exams	Subjective written exams
3		Assignments	Coursewise assignments
4		Viva	Course / Lab wise viva, Comprehensive viva
5		Seminars	Individual Seminars, Group seminars
6		Lab Exams	Internal and External Lab exams
7		Projects	Mini & Major projects evaluation
8	Indirect	Student Exit Survey	Passing out students
9		Alumni Survey	Old batches of the students
10		Employer Survey	Industries which recruits
11		Industry Survey	Leading industry in the domain of particular programme

2.2.4 Indicate the extent to which the laboratory and project course work are contributing towards attainment of the POs (10)

Institute Marks : 10.00

(Justify the balance between theory and practical for the attainment of the POs . Justify how the various project works (a sample of 20% best and average projects from total projects) carried as part of the programme curriculum contribute towards the attainment of the POs.)

All labs in the Programme are designed as per the curriculum requirements as well as to attain Programme Educational Objectives (PEOs) with the help of Program Outcomes (POs).

#### Association between Courses and Laboratories:

Course	Associated Laboratory
GR14A1009: Computer Programming	GR14A1027: Computer Programming Lab
GR14A1007: Engineering Physics	GR14A1029- Engineering Physics Lab
Basic Engineering Subjects	GR14A1025: Engineering Workshop
Basic Engineering Subjects	GR14A1026-IT Workshop
GR14A1008: Engineering Chemistry	GR14A1030-Engineering Chemistry Lab
GR14A1005:English	GR14A1024: Business Communication and Soft skills Lab, GR14A3100: Advanced English Communication Skills Lab
GR14A2035: Network Theory	GR14A2038: Multisim/Networks Lab
GR14A2036: DC Machines and Transformers	GR14A2037: DC Machines Lab
GR14A2042: Control Systems, GR14A2035: Network Theory	GR14A2039: Lab view/Mat lab
GR14A2041: AC Machines	GR14A2044: AC Machines Lab
GR14A2042: Control Systems	GR14A2045: Control Systems Lab
GR14A2043:Digital Electronics	GR14A2046: Analog and Digital Electronics Lab
GR11A3080: Power Electronics	GR11A3081: Power Electronics lab
GR11A2050: Micro processors & Micro controllers	GR11A2054: Microcontrollers Lab
GR11A3046: Electrical Measurements and Instrumentation	GR11A3087: Sensors/ Measurements and Instrumentation Lab
GR11A2066: Signals and Systems	GR11A4031:DSP based Electrical Lab
GR11A3026:Computer Methods in Power Systems	GR11A3083: Power Systems Lab
GR11A4090: Power system operation & Control	GR11A4092:Power Systems Simulation Lab
GR11A4089: Power Semiconductor Drives	GR11A4087: Power Electronic Drives Lab
GR11A4096: Programmable Logic Controllers	GR11A4086: PLC-Lab

#### LABORATORIES:

- 1. Computer programming and data structure lab:** is exclusively used, with an area of 66Sq.m, and it accommodates 65 students and sufficient exercises are conducted. It is equipped with computers, printers and software's. Qualified faculty, staff with good condition of computer lab equipment has created an ambience for learning. In these lab students learns programming with C language and data structure through number of laboratory experiments. Find Fibonacci series, find prime numbers, find sum/multiplication, sorting roots of quadratic equation, tower of Hanoi etc. In these workshop students learns how to use various tools for engineering applications.
- 2. Engineering Physics Lab:** is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with Computers, equipments, meters and required software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student learn how to measure values with multi meter, measure voltage, current and frequency using CRO, experiment on B-H curve, dielectric constant, energy gap in semiconductors, about magnetic field, Hall voltage, carrier concentration and carrier mobilation in semiconductors, optical fibers and laser diodes. In this lab student learns design, mathematical modeling and complex analysis of various physical components.
- 3. Engineering workshop:** is exclusively used, with an area of 200 Sq.m, and it accommodates 65 students and sufficient exercises are conducted. It is equipped with equipments and tools. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this workshop student learns carpentry, fitting, tin-smithy, electrical wiring, foundry, welding, plumbing and about power tools. In these workshop students learns how to use various tools for engineering applications.
- 4. IT workshop:** is exclusively used, with an area of 66 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with computer components, peripherals, equipments and tools. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this workshop student learns pc hardware, hardware trouble shooting and software trouble shooting, world wide web surfing, booting, sear engines, latex, words, excel and conversions. In these workshop students learns how to use computer for various applications in engineering course.
- 5. Engineering Chemistry Lab:** is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with Computers, equipments, meters and required software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student learn how to measure values with volumetric analysis, mineral analysis, colorimetry, instrumental analysis and organic preparations. In this lab student learns design, mathematical modeling and complex analysis of various chemical components.
- 6. English language and communication Lab:** is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and sufficient exercises are conducted. It is equipped with Computers, audio, video aids, required software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student leans about communication, interpersonal, soft personnel skills, Interview skills, body language, etiquettes, oral, written skills and phonetics.
- 7. Electrical Machines Lab-I** is exclusively used with an area of 84 Sq.m, it accommodates 36 students at a time and 12 experiments are conducted for which lab manual is available. It is equipped with Machines, CROs, Computers, Labview software, required meters and connecting wires. Qualified faculty, staff

with good condition of lab equipment has created an ambience for learning. In this lab students conducts experiments on magnetization characteristics of DC generator, load characteristics on DC shunt, series, compound motors, Speed control of DC motor. In this lab team of students need to conduct the experiments involved with design, calculations and complex analysis.

**8) Electrical Machines Lab-II** is exclusive used with an area of 84 Sq.m, it accommodates 36 students at a time and 9 experiments are conducted for which lab manual is available. It is equipped with Machines, CROs, Computers, LabVIEW software, required meters and connecting wires. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student conducts experiments on Induction machines, Synchronous machines. Load characteristics of Induction motor, speed control of induction motor, starting of ac machines, characteristics of synchronous generators are conducted. In this lab, team of students need to conduct the experiments. Design, calculations and complex analysis is involved in this laboratory.

**9) LabVIEW and MAT Lab** is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and 15 experiments are conducted. It is equipped with Kits, Computers, CROs, bread boards, function generators, connecting wires, Multi Sim, MAT Lab, LabVIEW software's. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. The main aim of the lab is to gain the practical hands on experience by exposing the students to various circuits & systems concepts in LabVIEW and MATLAB and gives an idea how to generate various signals & verify the properties of circuits. In this lab students learn to simulate all electrical and electronics engineering devices and experiments. In this lab students learn to design and conduct experiments, as well as to analyze and interpret data.

**10) Multisim and Networks Lab** is exclusively used, with an area of 67 Sq.m, it can accommodate 36 students and 15 experiments are conducted for which lab manual is available. It is equipped with Kits, Computers, CROs, bread boards, function generators, connecting wires, Multisim software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. The main aim of the lab is to gain the practical hands on experience by exposing the students to various circuits & systems concepts in LabVIEW and MATLAB to give an idea how to generate various signals & verify the properties of circuits & systems. Students conducts experiments on characteristics of Resistor, Inductor, capacitor, voltage source, current source, Kirchhoff's law, Ohm's law, Ampere's law, mesh and nodal analysis, network theorems such as Thevenin's theorem, Norton's theorem, Maximum power transfers theorem, super position theorem, millers theorem and reciprocity theorem. In this lab students learn to design and conduct experiments, as well as to analyze and interpret data.

**11) Analogue and Digital Electronics Lab:** is exclusively used, with an area of 67 Sq.m, and it accommodates 36 students and 15 experiments are conducted. It is equipped with Kits, Computers, CROs, bread boards, function generators, connecting wires and Multi Sim software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. The main aim of the lab is to gain the practical hands on experience by exposing the students to various electronics and systems concepts in MATLAB and gives an idea how to generate various signals & verify the properties of signals and systems live linearity, stability, time invariance, conclusions, corrections etc. In this lab students learn to design and conduct experiments, as well as to analyze and interpret data.

Students gain knowledge on basics of analog integrated circuits design and comprehend the different issues related to the development of analog integrated circuits including circuit design implementation methodologies testing design methodologies and tools and future trends. Students learn solid foundation in electrical and electronics concepts required to engineering problems in exploring of switching theory which will enable the process of logical design and to provide mathematical foundations and tools for digital system design that is an essential part in the research and development in almost all areas of modern technology. The main objective of this lab course is to gain the practical hands on experience by exposing the students to various linear IC applications. The students will have an understanding of the concepts involved in various linear integrated circuits and their various applications. Through this lab the students will understand various linear ICs and finally this also introduces some TTL ICs for digital circuit applications especially the LM 386 operational amplifier and its various applications. The lab also introduces to the students 555 timer and its applications, various voltage regulators.

**12) Control Systems and Simulations Lab** is exclusively used with an area of 84 Sq.m, it accommodates 35 students at a time and 15 experiments are conducted for which lab manual is available. It is equipped with Computers, CRO, and Matlab software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student will conduct experiments on open loop, closed loop control systems, gain cautions, error calculations, design of lead, lag, lead lag control systems, transfer function, Bode plot, Nyquist plot, root locus are plotted using Matlab software. Mason's gain calculation, polar plot, Routh criteria are studied and simulated. Complex calculations, design and analysis of electrical and electronics engineering is involved in this laboratory.

**13) Power Electronics lab** is exclusively used, with an area of 84 Sq.m, it accommodates 36 students at a time and 19 experiments are conducted for which lab manual is available. It is equipped with Kits, Bread boards, CROs, Computers, PSIM software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab characteristics of Thyristor, working of rectifier, inverter, chopper, Cyclo-converter and AC voltage regulator are studied. In this lab student will explore simulation of power electronic devices in Matlab software where they learn design, mathematical modeling, experimentation, application of these devices.

**14) Microprocessor and Micro controller Lab** is exclusively used with an area of 95 Sq.m, it accommodates 36 students at a time and 40 experiments are conducted for which lab manual is available. It is equipped with Kits, CROs, connecting wires, Computers, TASM, Proteus and Keil software. Qualified faculty, staff with good condition of lab equipment has created ambience for learning. To develop assembly level programs parallel providing the basics of processors. To solve problems with solid foundation on interfacing the external devices to the processor. In this lab students learn to design and conduct experiments, as well as to analyze and interpret data. Enable to implement the applications using processors. Atmel AVR 8- and 32-bit microcontrollers complement Atmels ARM microcontrollers and microprocessors to deliver a unique combination of performance, power efficiency and design flexibility. Enable to implement the applications using processors in Arduino. Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It is intended for artists, designers, hobbyists and anyone interested in creating interactive objects or environments. In this lab students will learn about functioning of most of the electronic devices.

**15) Electrical Measurements Lab** is exclusively used with an area of 67 Sq.m, it accommodates 36 students at a time and 15 experiments are conducted for which lab manual is available. It is equipped with Computers, CROs, and LABVIEW software. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student will learn experiments on linear scale, non linear scale, voltage, current, power, frequency, power factor, active power, reactive power measurements. Weinstein bridge, Anderson bridge, Maxwells inductance bridge, Desauty bridge, Owens bridge and capacitance bridge experiments are conducted where complex analysis, balancing and mathematical calculations are involved.

**16) Power systems lab** is exclusively used with an area of 67 Sq.m, it accommodates 36 students at a time and 10 experiments are conducted for which lab manual is available. It is equipped with Computers. Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. In this lab student will learn experiments tripping Characteristics of an MCB of 1Ampere rating, Characteristics of fuse wire, Testing of Instantaneous Over Current relay, Current time Characteristics of Induction Disc type relay, Characteristics of Bimetallic Thermal Over Load relays, Testing of Transformer differential relay, Model of a Transmission Line with Lumped Parameters, Power Factor Correction systems, Over Voltage/Under Voltage Relay testing, Distance protection, Directional Over Current relay

**17) DSP Lab** is exclusively used with an area of 67 Sq.m, it accommodates 36 students at a time and 10 experiments are conducted for which lab manual is available. It is equipped with 2 processors such as (TMS320F2812 ez DSP Kit, TMS320F28027 PICCOLO Launch Pad and Code Composer Studio 6.01). Qualified faculty, staff with good condition of lab equipment has created an ambience for learning. Students will be able to learn programming in CC Studio with the DSP kits and launch pad kits. They also able to generate the PWM pulses and utilise with the external hardware circuits like inverters. They would be able to implement the knowledge of programming in CC studio for interfacing external hardware circuits for their projects as well.

**18) Gender Sensitization Lab** In this lab students will learn about the problems facing by womens in the society in ancient period and modern period. They also learn about equalisation and rights of women. They will implement those ideas in the society.

## Laboratory tasks and its Description

Laboratory Tasks	Type	PO
<b>GR14A1027:Computer Programming &amp;Data Structures Lab</b>		
1. Write a C program to find the sum of individual digits of a positive integer.	Problem Analysis	a,c,k
2. Fibonacci Sequence	Problem Analysis	b,c,l
3. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.	Problem Analysis	a,k,l
4. Write a C program to calculate the following Sum: Sum= $1-x^2/2!+x^4/4!-x^6/6!+x^8/8!-x^{10}/10!$	Problem Analysis	a,c,l
5. Write a C program to find the roots of a quadratic equation using if-else.	Problem Analysis	a,b,l
6. Write a C programs that use both recursive and non-recursive functions	Problem Analysis	a,b,k
7.To find the factorial of a given integer.	Problem Analysis	b,c,k
8. To find the GCD (greatest common divisor) of two given integers.	Problem Analysis	b,k,l
9. Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression: $1+x+x^2+x^3+.....+x^n$	Problem Analysis	a,k,l
10. Write a C Program merging of two files in a single file	Problem Analysis	b,k,l
11. Write a C program to reverse the first n characters in a file.	Problem Analysis	a,c,l
12. Write a C Program to Sort a given list of integers using Bubble Sort Technique.	Problem Analysis	a,b,l
13. Write a C Program to Sort a given list of integers using Merge Sort Technique	Problem Analysis	b,c,l
14. Write a C Program to Sort a given list of integers using Quick Sort Technique	Problem Analysis	b,c,l
<b>GR14A1029- -Engineering Physics Lab</b>		
1. Measurements using Multimeter.	Demonstration	b,k,l
2. Measurement of voltage and Frequency using CRO.	Demonstration	a,c,k
3. B-H curve.	Problem Analysis	b,c,l
4. Determination of Dielectric constant.	Problem Analysis	a,k,l
5. Energy gap of a semi conductor	Problem Analysis	a,c,l
6. Study of magnetic field along the axis of a circular coil.	Problem Analysis	b,c,l
7. Study of Hall Voltage	Problem Analysis	b,k,l
8. Determination of carrier concentration and carrier mobility of a semiconductor.	Problem Analysis	a,c,k
9. Numerical Aperture of optical fiber.	Problem Analysis	b,c,l
10. Bending losses in optical fiber.	Problem Analysis	a,k,l
11. Air gap losses in optical fiber	Problem Analysis	a,c,l
12. Characteristics of LASER diode	Problem Analysis	a,b,l
<b>GR14A1025:Engineering Workshop</b>		
1. Carpentry	Hand on Experience	h,k,l
2. Fitting	Hand on Experience	h,k,l
3. Tin – Smithy and Development of jobs carried out and soldering.	Hand on Experience	h,k,l
4. House – Wiring	Hand on Experience	h,k,l
5. Black Smithy	Demonstration	h,k,l
6. Foundry	Demonstration	h,k,l
7. Welding	Demonstration	h,k,l
8. Plumbing	Demonstration	h,k,l
9. Power tools	Demonstration	h,k,l
<b>GR14A1026-IT Workshop</b>		
1. PC Hardware	Demonstration	a,c,l
2. Internet & World Wide Web	Demonstration	a,c,k
3. Productivity tools	Demonstration	b,c,k
4. Hardware Troubleshooting	Demonstration	a,c,l
5. Software Troubleshooting	Demonstration	a,c,k
6. Orientation & Connectivity Boot Camp	Demonstration	a,c,k
7. Web Browsers, Surfing the Web	Demonstration	a,c,l
8. Search Engines & Netiquette	Demonstration	b,k,l
9. Cyber Hygiene.	Demonstration	a,c,k
10.Productivity Tools	Demonstration	b,c,l
<b>GR14A1030-Engineering Chemistry Lab</b>		
1. Conductometry	Demonstration	a,c,l
2. Potentiometry	Demonstration	b,k,l
3. Lubricants	Demonstration	a,b,k
4. Organic preparations.	Demonstration	a,c,k
5. Complexometry.	Demonstration	a,c,k
6. Permanganometry	Demonstration	a,c,l
<b>GR14A1024,GR14A3100 English Language Communication Skills Lab</b>		
1. Introduction to the sounds of English –Vowels, Diphthongs & Consonants.	Demonstration	g,f
2. Situational Dialogues/Role-play.	Demonstration	g,f
3. ‘Just A Minute’ Sessions (JAM).	Demonstration	g,f
4. Describing Objects/Situations/People.	Demonstration	g,f
5. Information Transfer.	Demonstration	g,f
6. Debate.	Demonstration	g,f
7.Telephone Skills	Demonstration	g,f

8. Giving Directions	Demonstration	g,t
<b>GR14A2037 Electrical Machines Lab –I</b>		
1. Speed Control of a D.C Shunt Motor	Problem Analysis	a,c,l
2. Brake Test on a DC Shunt Motor	Problem Analysis	a,c,k
3. Brake Test on a DC Compound Motor	Problem Analysis	b,c,k
4. Open Circuit Characteristics of a DC Shunt Generator	Problem Analysis	a,c,k
5. Load test on a D.C. Shunt Generator	Problem Analysis	a,c,l
6. Load test on a D.C. Series Generator	Problem Analysis	b,k,l
7. Load test on D.C. Compound Generator	Problem Analysis	a,c,k
8. Hopkinson Test	Problem Analysis	b,c,l
9. Fields Test	Problem Analysis	a,k,l
10. Retardation Test on D.C. Shunt Motor	Problem Analysis	a,c,l
11. Swinburnes Test	Problem Analysis	a,b,l
12. Separation Of Core Losses	Problem Analysis	a,b,k
<b>GR14A2044 Electrical Machines Lab-II</b>		
1. OC, SC and Load tests on single phase transformer	Problem Analysis	a,c,l
2. Sumpner's test	Problem Analysis	a,c,k
3. V and inverted V curves of a 3-phase synchronous motor.	Problem Analysis	b,c,k
4. Brake test on slip ring induction motor.	Problem Analysis	a,c,k
5. No-load and block rotor tests on squirrel cage induction motor.	Problem Analysis	a,c,l
6. Equivalent circuit of single phase induction motor.	Problem Analysis	b,k,l
7. Determination of $X_d$ and $X_q$ of a salient pole synchronous machine from slip test.	Problem Analysis	a,c,k
8. Regulation of alternator by synchronous impedance method and MMF method.	Problem Analysis	b,c,l
9. Hysteresis Loss determination.	Problem Analysis	a,k,l
10. Scott connection.	Problem Analysis	a,c,l
11. Rotor resistance starter for slip ring induction motor.	Problem Analysis	a,b,l
12. Induction generator.	Problem Analysis	a,b,k
13. Heat run test on transformer.	Problem Analysis	b,c,k
14. Star-delta starter for squirrel cage induction motor.	Problem Analysis	b,k,l
<b>GR14A2039 LabVIEW and Mat Lab</b>		
1. Virtual Instruments	Demonstration	a,c,l
2. Editing Techniques	Demonstration	b,k,l
3. Building VI	Demonstration	a,c,k
4. Creating the SubVI	Demonstration	b,c,l
5. Using While loops and Charts	Demonstration	a,k,l
6. Using a For loop	Demonstration	a,c,l
7. Creating an Array with Auto-Indexing	Demonstration	a,b,l
8. Using the Graph and Analysis Vis	Demonstration	a,b,k
9. Using the Case Structure	Demonstration	b,c,k
10. Using the Formula Node	Demonstration	b,k,l
<b>MAT LAB</b>		
11. The Basics	Problem Analysis	b,k,l
a. Introduction	Demonstration	a,c,k
b. Simple math	Problem Analysis	b,c,l
c. MATLAB and variables	Problem Analysis	a,k,l
d. Simple math	Problem Analysis	a,c,l
e. Complex numbers	Problem Analysis	a,b,l
f. Common mathematical functions	Problem Analysis	a,b,k
g. M-files	Demonstration	b,c,k
h. Workspace	Demonstration	b,k,l
i. Number display formats	Demonstration	a,c,l
j. Path Browser	Demonstration	a,c,k
k. Toolboxes	Demonstration	b,c,k
l. Arrays and Plots	Demonstration	a,c,k
m. Matrix operations	Problem Analysis	a,c,l
12. Strings, Logic and Control Flow	Problem Analysis	a,c,k
a. Strings	Problem Analysis	b,c,k
b. Relational Operators	Problem Analysis	a,c,k
c. Logical Operators	Problem Analysis	a,c,l
d. Control flow	Problem Analysis	b,k,l
e. Conditions & Loops	Problem Analysis	a,c,k
13. Polynomials, Integration & Differentiation	Problem Analysis	b,c,l
a. Polynomials	Problem Analysis	a,k,l
b. Numerical Integration	Problem Analysis	a,c,l
c. Numerical Differentiation	Problem Analysis	a,c,l
d. Functions	Problem Analysis	b,k,l
e. Rules and Properties	Problem Analysis	a,c,k
14. Introduction to Simulink		
a. Introduction	Problem Analysis	a,k,l
b. Solving ODE	Problem Analysis	a,c,l
c. Building a Simple Block	Problem Analysis	a,b,l
d. Rectifier circuits - Example	Problem Analysis	a,b,k
e. Fourier Spectrum Example	Problem Analysis	b,c,k
<b>GR14A2038 Multisim/Networks Lab</b>		
1. Thevenin's Theorem.	Problem Analysis	a,c,k
2. Norton's Theorem	Problem Analysis	b,c,l
3. Maximum Power Transfer Theorem.	Problem Analysis	a,k,l
4. Superposition and Reciprocity Theorems.	Problem Analysis	a,c,l
5. Z and Y parameters	Problem Analysis	a,b,l



p, z and y parameters.	Problem Analysis	a,u,i
6. Transmission and Hybrid Parameters.	Problem Analysis	a,b,k
7. Compensation and Milliman's Theorems.	Problem Analysis	b,c,k
8. Series Resonance	Problem Analysis	b,k,l
9. Parallel Resonance.	Problem Analysis	a,c,l
10. Locus of Current Vector in an R-L Circuit	Problem Analysis	b,k,l
11. Locus of Current Vector in an R-C Circuit	Problem Analysis	a,c,k
12. Measurement of 3-phase power by two wattmeter method for unbalanced loads.	Problem Analysis	b,c,l
13. Measurement of Active and Reactive power by star and delta connected balanced loads.	Problem Analysis	a,k,l
<b>GR14A2046 Analog and Digital Electronics Lab</b>		
1. Op Amp As proportional Amplifier	Problem Analysis	a,c,l
2. Op Amp As integrator	Problem Analysis	b,k,l
3. Op Amp As differential amplifier	Problem Analysis	a,c,k
4. Op Amp As summation amplifier	Problem Analysis	b,c,l
5. Op Amp As for multiplying two time varying signals	Problem Analysis	a,k,l
6. Op Amp for generation of triangle wave	Problem Analysis	a,c,l
7. Op Amp for generation of Square	Problem Analysis	a,b,l
8. Op Amp for generation of sin wave	Problem Analysis	a,b,k
9. 555 timer Various Applications	Problem Analysis	b,c,k
10. 555 timer as speed sensor / frequency to Voltage Converter	Problem Analysis	b,k,l
11. Op Amp as A/D to converter & D/A converter	Problem Analysis	a,c,l
12. Op Amp as V/f to F/v converter	Problem Analysis	a,c,k
13. All gates using 7800 series & I C's	Problem Analysis	b,c,k
14. 7800 series & I C's applications	Problem Analysis	a,c,k
15. Combination circuits	Problem Analysis	a,c,l
16. Converters	Problem Analysis	a,c,k
17. Shifters	Problem Analysis	b,c,k
18. VHDL Programming for implementing digital electronics.	Case Study	a,c,k
<b>GR14A2045 Control Systems Lab</b>		
1. Transfer Function from Zeros and Poles	Problem Analysis	a,c,l
2. Zeros and Poles from Transfer Function	Problem Analysis	b,k,l
3. Characteristics of Synchros	Problem Analysis	a,c,k
4. Time Response of Series RLC Circuits	Problem Analysis	b,c,l
5. Transfer function from State Model	Problem Analysis	a,k,l
6. State Model from Transfer Function	Problem Analysis	a,c,l
7. State from Zeroes and Poles	Problem Analysis	a,b,l
8. Zeroes and Poles from State Model	Problem Analysis	a,b,k
9. Step Response of a Transfer Function	Problem Analysis	b,c,k
10. Impulse Response of a Transfer Function	Problem Analysis	b,k,l
11. Ramp Response of a Transfer function	Problem Analysis	a,c,l
12. Step Response of a State Model	Problem Analysis	b,k,l
13. Impulse Response of a State Model	Problem Analysis	a,c,k
14. Ramp Response of a State model	Problem Analysis	b,c,l
15. Transfer Function of a D.C generator	Problem Analysis	a,k,l
16. Time Response of a Second Order System	Problem Analysis	a,c,l
17. Root Locus from a Transfer Function	Problem Analysis	a,b,l
18. Bode plot from a transfer function	Problem Analysis	a,b,k
19. PID controller	Problem Analysis	b,c,k
20. Lag compensator	Problem Analysis	b,k,l
21. Lead Compensator	Problem Analysis	a,c,l
22. Lead-Lag compensator	Problem Analysis	a,c,k
23. Sum of Sinusoidal	Problem Analysis	b,c,k
24. Discrete Fourier Transforms	Problem Analysis	a,c,k
25. Impulse and Step function	Problem Analysis	a,c,l
26. Square and Saw-Tooth Response	Problem Analysis	a,c,k
27. Impulse Response	Problem Analysis	b,c,k
28. Continuous Sine-wave	Problem Analysis	a,c,k
29. Fourier Transform of Non-periodic signals	Problem Analysis	a,c,l
30. Frequency Response of a first order system	Problem Analysis	b,k,l
31. Impulse Response through Transfer Function	Problem Analysis	a,c,k
32. Sampling Process	Problem Analysis	b,c,l
33. Determination of Transfer function of a D.C motor using LabVIEW	Problem Analysis	a,k,l
34. Hysteric control of speed and current of D.C motor	Problem Analysis	a,c,l
35. Bang bang speed control of D.C motor	Problem Analysis	a,b,l
36. Speed control of D.C motor using PID controller with Tacho feedback	Problem Analysis	a,b,k
37. Experimental determination of frequency response	Problem Analysis	b,c,k
38. Nyquist plot from a transfer function	Problem Analysis	b,k,l
<b>GR14A3020 Power Electronics and Simulations Lab</b>		
1. Thyristorised DC Drive for 5HP Motor.	Design	b,c,l
2. Thyristorised Drive for PMDC Motor with Speed Measurement and Closed loop control.	Design	a,k,l
3. IGBT based Single 4 Quadrant Drive for PMDC Motor with Speed Measurement & Closed loop control.	Design	a,c,l
4. Single Phase Cyclo converter.	Design	a,b,l
5. Three Phase Input Thyristorised Drive for DC Motor with Closed Loop Control.	Design	a,b,k
6. Closed Loop Control of DC Motor Using Three Phase Fed Four Quadrant Chopper Drive.	Problem Analysis	b,c,k
7. Speed Control of 3 Phase Wound Rotor Induction Motor.	Problem Analysis	b,k,l
8. Single Phase Fully Controlled Bridge Converter.	Design	a,k,l
9. Single Phase Half Controlled Bridge Converter	Design	a,c,l
<b>GR11A2054: Microprocessor and Microcontrollers Lab</b>		



1. Addition of Numbers	Problem Analysis	b,k,l
2. Move 5 Bytes	Problem Analysis	a,c,l
3. Packing of three BCD numbers	Problem Analysis	b,k,l
4. Convert Fahrenheit to Celsius	Problem Analysis	a,c,k
5. Factorial of given number	Problem Analysis	b,c,l
6. Finding Largest number	Problem Analysis	a,k,l
7. Find the Square Root Of A Given Number	Problem Analysis	a,c,l
8. Next number in a Fibonacci Series	Problem Analysis	a,b,l
9. Arrange The Numbers In Ascending Order	Problem Analysis	a,b,k
10. LCM of two given numbers	Problem Analysis	b,c,k
11. Multiplication by shift and add method	Problem Analysis	b,k,l
12. Transfer string from one location to another	Problem Analysis	a,b,k
13. Display a string on the screen	Problem Analysis	b,c,k
14. Identification of Even Or Odd Number Using Procedures	Problem Analysis	b,k,l
15. Identification of Prime Number Or Not Using Procedures	Problem Analysis	a,c,l
16. Addition of two 16 bit numbers	Problem Analysis	a,c,k
17. Substraction of two 16 bit numbers	Problem Analysis	b,c,k
18. Multiplication of two 16 bit numbers	Problem Analysis	a,c,k
19.Division of two 16 bit numbers	Problem Analysis	a,c,l
20. Arithmetic operation	Problem Analysis	a,c,k
21. Multibyte Addition	Problem Analysis	b,c,k
22. ASCII Addition	Problem Analysis	a,c,k
23. Display string	Problem Analysis	a,c,l
24.Reverse a string	Problem Analysis	b,k,l
25.Length of a string	Problem Analysis	a,b,k
26.Find out the number of even and odd	Problem Analysis	b,c,k
27. Find out the number of positive and negative	Problem Analysis	b,k,l
28. Addition of a series of 8-bit numbers	Problem Analysis	a,c,l
29. Find GCD of two given numbers	Problem Analysis	a,c,k
30. Program to display ASCII codes between 65 and 89	Demonstration	b,c,k
31. To display ASCII values corresponding to the string "Micro Processor Lab"	Demonstration	a,c,k
32.To concatenate two given strings	Problem Analysis	a,c,l
33.To check whether the string is palindrome or not	Problem Analysis	a,c,k
34.To display a string in increasing alphabetical order	Problem Analysis	b,c,k
35.To count number of 1's in a given number	Problem Analysis	a,c,k
36.To detect whether a given number is prime or not	Problem Analysis	a,c,l
37. Program to verify password.	Problem Analysis	b,k,l
38. Program to delete file (using 21h, function 41h)	Problem Analysis	b,c,k
39.Two digit calculator(+,-,*,/)for single digit number	Problem Analysis	a,c,k
40. Program to display the ASCII code	Problem Analysis	a,c,l
41. Copy contents of source file to destination file	Problem Analysis	a,c,k
42. Program to convert a hexadecimal no. into a decimal no	Problem Analysis	b,c,k
43. Program to convert hexadecimal no. to binary no	Problem Analysis	a,k,l
<b>GR14A3019 Electrical Measurements Lab</b>		
Desauty's bridge	Design and Demonstration	a,b,l
Modified Desauty's bridge	Design and Demonstration	a,b,k
Anderson's bridge	Design and Demonstration	b,c,k
Owen's bridge	Design and Demonstration	b,k,l
Maxwell's inductance bridge	Design and Demonstration	a,c,l
Maxwell's inductance capacitance Bridge	Design and Demonstration	a,c,k
Calibration of 1 – phase energy Meter	Design and Demonstration	b,c,k
Calibration of power factor Meter	Design and Demonstration	a,c,k
Measurement of parameters of a Choke coil using 3 voltmeter and 3Ammeter method	Design and Demonstration	a,c,l
Measurement of 3 – phase power By 2-wattmeters	Design and Demonstration	a,c,k
Measurement of active and Reactive power by 1- wattmeter	Design and Demonstration	b,c,k
Method		
Hay's bridge	Design and Demonstration	a,c,k
Wheatstone's bridge	Design and Demonstration	a,c,l
Schering's bridge	Design and Demonstration	b,k,l
High voltage Schering's bridge	Design and Demonstration	a,c,k
Power factor measurement	Design and Demonstration	b,c,l
Calibration of energy meter using LabVIEW	Design and Demonstration	a,k,l
<b>GR11A3083 : Power Systems Lab</b>		
1. Tripping Characteristics of an MCB of 1Ampere rating	Problem Analysis	b,c,l
2. Characteristics of fuse wire	Problem Analysis	a,k,l
3. Testing of Instantaneous Over Current relay	Problem Analysis	a,c,l
4. Current time Characteristics of Induction Disc type relay	Problem Analysis	a,b,l
5. Characteristics of Bimetallic Thermal Over Load relays	Problem Analysis	a,b,k
6. Testing of Transformer differential relay	Problem Analysis	b,c,k
7. Model of a Transmission Line with Lumped Parameters	Problem Analysis	b,k,l
8. Power Factor Correction systems	Problem Analysis	a,k,l
9. Over Voltage/Under Voltage Relay testing	Problem Analysis	a,c,l

**2.3 Assessment of the attainment of the Programme Outcomes (125)****Total Marks : 125.00**

2.3.1 Describe assessment tools and processes used for assessing the attainment of each PO (25)

Institute Marks : 25.00

Describe the assessment process that periodically documents and demonstrates the degree to which the Programme Outcomes are attained. Also include information on:

- a) A listing and description of the assessment processes used to gather the data upon which the evaluation of each the programme educational objective is based. Examples of data collection processes may include, but are not limited to, specific exam questions, student portfolios, internally developed assessment exams, senior project presentations, nationally-normed exams, oral exams, focus groups, industrial advisory committee;
- b) The frequency with which these assessment processes are carried out.

The following assessment processes are used for achievement of the POs

S. No	Method	Assessment Tool	Description
1	Direct	Mid Exams	Objective, Subjective exams
2		End Exams	Subjective written exams
3		Assignments	Coursewise assignments
4		Viva	Course / Lab wise viva, Comprehensive viva
5		Seminars	Individual Seminars, Group seminars
6		Lab Exams	Internal and External Lab exams
7		Projects	Mini & Major projects evaluation
8	Indirect	Student Exit Survey	Passing out students
9		Alumni Survey	Old batches of the students
10		Employer Survey	Industries which recruits
11		Industry Survey	Leading industry in the domain of particular programme

**Exams and assignments:** The results and the subsequent grade of pass in that course is based on end semester exam results and continuous assessments. Individual breakup is as follows.

**As per GR14 regulations:**

S. No	Component of assessment	Marks allotted	Type of assessment	Scheme of examination
1	Theory	30	Internal exams and continuous evaluation	Two mid semester examinations shall be conducted for 20 marks each for duration of 2 hrs. Average of two mid exams shall be considered Subjective – 15marks Objective – 5 marks Tutorials/Assignments – 5 marks Attendance – 5 marks
		70	Semester end examination	The semester end examination is for a duration of 3 hours.
2	Practical	25	Internal exams and continuous evaluation	Lab internal – 10 marks Record – 5 marks Continuous assessment – 5 marks Attendance – 5 marks
		50	Semester end examination	The semester end examination is for a duration of 3 hours.
3	Industry oriented mini project	25	Internal exams and continuous evaluation	Continuous assessment – 5 Marks Report – 5 marks Attendance – 5 marks Road show, evaluation by committee – 10 marks
		50	Semester end examination	Project presentation before committee consisting external examiner – 50 marks
4	Major project	50	Internal exams and continuous evaluation	Continuous assessment – 15 Marks Report – 5 marks Attendance – 5 marks Road show, evaluation by committee – 25 marks
		150	Semester end examination	Project presentation before committee consisting external examiner – 150 marks
5	Comprehensive	100	Evaluation	Overall understanding of all subjects

	viva		committee	by committee -100
6	Seminar	50	Evaluation committee	Efforts in collecting data and way of presentation in the form of report and oral is assessed by the committee – 50

Programme Outcomes are assessed with the help of direct and indirect methods. They are mapped with relevant courses and assessment of the attainment of respective

course outcomes reflects the attainment of the Programme Outcome over a period of time. These direct assessment methods are provided through direct examinations for

theory & laboratory courses and tutorials.

Indirect assessment strategies are implemented by embedding them in the course end survey, Student Exit survey, Alumni Survey and Project Evaluation Report.

The rubrics

for all the surveys are enclosed in attachment

Finally, program outcomes are assessed with above mentioned data and Department Monitoring Committee (DMC) to confirm the PO attainment level.

S.No	Method	Assessment Tool	Description
1	Direct	Mid Exams	Objective, Subjective exams
2		End Exams	Subjective written exams
3		Assignments	Course wise assignments
4		Viva	Course / Lab wise viva, Comprehensive viva
5		Seminars	Individual Seminars, Group seminars
6		Lab Exams	Internal and External Lab exams
7		Projects	Mini & Major projects evaluation
8	Indirect	Student Exit Survey	Passing out students
9		Alumni Survey	Old batches of the students
10		Employer Survey	Industries which recruits
11		Industry Survey	Leading industry in the domain of particular programme

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
a	GR14A1001: linear algebra and single variable calculus	86	87.24%
	GR14A1004: Numerical Methods	91	
	GR14A1003: Transform calculus and fourier series	74.24	
	GR14A1007: Engineering Physics	98	
	GR14A1008: Computer programming	87	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
b	GR14A2043: Digital Electronics	93	94.46%
	GR14A1018: Basic Electrical Engineering	93.93	
	GR14A2034: Electro Magnetic Fields	93.93	
	GR14A2036: DC Machines and transformers	92.42	
	GR14A2046: Analog and Digital Electronics lab Lab Electronics Lab	99.03	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
c	GR14A2035: Network Theory	98.46	95.38%
	GR14A2041: AC Machines	87.69	
	GR14A2037: DC Machines Lab	100	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average Attainment
d	GR11A3078: OPamps	86	97.4%
	GR11A3082: Power Transmission systems	98	
	GR14A2042: Control Systems	100	
	GR11A3080: Power Electronics	98	
	GR14A2044: AC Machines Lab	100	
	GR14A2045: Control Systems lab	100	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
e	GR11A3046: Electrical Measurements instrumentation	100	97.8%
	GR11A4089: Power Semiconductor Drives	93.93	
	GR11A3026: Computer Methods in Power Systems	95.45	
	GR11A3077: Non-conventional Energy Sources	100	
	GR11A3081: Power Electronics Lab	100	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
f	GR14A3023: Utilization of Electrical Energy	98.4	98.4%
	GR11A3089: Switch Gear and Protection	99.2	
	GR11A4090: Power System Operation and Control	92.8	
	GR11A4035: Electrical Distribution Systems	99.2	
	GR11A3087Sensors/Measurements & instrumentation	100	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
g	GR11A4049: HVDC Transmission	100	100%
	GR11A4097: Major Project	100	
	GR11A4018: Comprehensive Viva	100	
Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
h	GR14A1024:BusinessCommunicationSkills Lab	100	100%
	GR14A3100: Advanced Communication Skills Lab	100	
Direct Assessment			
PO	Contributing Courses	Attainment %	Average Attainment
i	GR14A2001: Environmental Sciences	100	100
	GR14A3101: Industry Oriented Mini Project	100	

Direct Assessment			
PO	Contributing Courses	Attainment %	Average attainment
j	GR11A2050: Microprocessors and Microcontrollers	98.48	99.24%
	GR11A2054: Microprocessors and Microcontrollers lab	100	

Direct Assessment			
PO	Contributing Courses	Attainment	Average

		%	attainment
k	GR14A2038: Multisim/Networks Lab	100	95.33%
	GR14A2045: Control Systems Lab	100	
	GR11A3078: OpAmps	86	
<b>Direct Assessment</b>			
PO	Contributing Courses	Attainment %	Average attainment
1	GR14A2014: MEFA	92	96.6
	GR14A3102: Management Science	95	
	GR11A4097: Main Project work	100	
	GR11A4018: Comprehensive viva	100	
	GR14A2034: Electromagnetic Fields	96	

**Indirect Assessment**

Assessment Tool	Attainment Level	Average Attainment level in Indirect measure
Alumni Survey	Good	Satisfactory
Employer Survey	Good	Satisfactory
Student Exit Survey	Good	Satisfactory
Course Exit Survey	Excellent	Good

**Frequency of the Assessment Processes:**

Assessment Tool	Description	Assessment Cycle	Evaluation Cycle	Documentation and Maintenance
Mid Exams	Internal Evaluation	Twice in a semester	Twice in a semester	Marks are recorded in department and examination cell.
End Exams	External Evaluation	Once in a semester	Once in a semester	Result Recorded at examination cell and department
Assignments	Before Every Mid Exam	Twice in a semester	Twice in a semester	Course Register
Viva	End of the Semester	Once in a semester	Once in a semester	Lab Register
Seminars	General and Technical	Once in a semester	Once in a semester	Course Register
Lab Exams	Internal and External experimental evaluation	Once in a semester	Once in a semester	Lab record, Examination Cell
Projects and comprehensive viva	Mini and Major project evaluation	Once in four years	Once in four years	Examination Cell
Surveys	All Stake Holders	Once in a year	Once in a year	Recorded in department

2.3.2 Indicate results of Evaluation of each PO (100)

Institute Marks : 100.00

- c) The expected level of attainment for each of the program outcomes;  
d) Summaries of the results of the evaluation processes and an analysis illustrating the extent to which each of the programme outcomes are attained; and  
e) How the results are documented and maintained.

File Name
<a href="#">Direct assessment</a>
<a href="#">Course attainment in Mid exam</a>
<a href="#">Course attainments in external exam</a>

**c. The expected level of attainment for each of the program outcomes**

**Step-by-step process for assessing through attainment of each Program Outcomes**

**Step 1:** The Program coordinator analyses each outcome into elements (different abilities specified in the outcome) and a set of attributes are defined for each element (actions that explicitly demonstrate mastery of the abilities specified). In addition, generate well designed surveys to assess the outcome.

**Step 2:** For each outcome define performance indicators (Assessment criteria) and their targets.

**Step 3:** Identify/select courses that address the outcome (each course contributes to at least one of the outcomes). Hence, each outcome is assessed in several courses to ensure that students acquire an appropriate level in terms of knowledge/skills of an outcome.

**Step 4:** The module coordinators collect the qualitative and quantitative data and were used for outcome assessment in a continual process.

**Step 5:** The Head of the department analyze the collected data. If the assessed data meets the performance targets which are specified in step 2, the outcome is attained.

**Otherwise, consider step6.**

**Step 6:** The Head of the Department recommends content delivery methods/course outcomes/ curriculum improvements as needed.

**Programme outcome 1:** Ability to apply knowledge of mathematics, science, and engineering

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected			
GR14A1001: linear algebra and single variable calculus	Applies knowledge of mathematics/ Science principals to provide numerical solution to model the problem	Internal/external Evaluation/ Assignments/ Group tasks( mini projects, main projects, lab activities, team activities)	Course outcomes  Rubrics	80%	2 years  End of the semester			
GR14A1004: Numerical Methods		Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	80%	2 years  End of the semester			
GR14A1003: Transform calculus and fourier series					End of the programme			
GR14A1007: Engineering Physics		Solve the problems by computing principles effectively	Internal/external Evaluation/ Assignments/ Group tasks	Course outcomes  Rubrics	80%	2 years  End of the semester		
GR14A1027: C programming	Courses end survey/ Graduate Survey/ Alumni survey		Survey reports	75%	2 years  End of the semester			
GR14A2076: Digital Electronics					End of the programme			
GR14A2035: Network theory	Internal/external Evaluation/ Assignments/ Group tasks		Course outcomes  Rubrics	80%	2 years  End of the semester			
GR14A2034: Electro Magnetic Fields					Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	75%	2 years  End of the semester
GR14A2036: DC Machines and transformers								End of the programme
GR14A2040: Power Generation and Distribution					End of the programme			
GR14A1018: Basic Electric Engineering	Internal/external Lab	Lab activity data  Rubrics Course outcome	80%	2 years  End of the semester				
GR14A2041: AC Machines				End of the programme				

**Programme outcome 2:** Ability to design and conduct experiments, as well as to analyze and interpret data.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR14A2046: Analog and Digital Electronics Lab	design and conduct experiments	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data  Rubrics Course outcome	80%	2 years  End of the semester
GR14A2037: DC Machines Lab		Courses end survey/ Graduate Survey/ Alumni survey	Survey data	80%	2 years  End of the semester
GR11A3078: OPamps					End of the programme
GR11A3082: Power Transmission systems		Internal/external Lab	Lab		
GR14A2042: Control					

Systems			activity data		2 years
GR11A3080: Power Electronics		Evaluation/ Assignments/ Group tasks	Rubrics Course outcome	80%	End of the semester
GR14A2044: AC Machines Lab					
GR14A2045: Control Systems	analyze and interpret data.	Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	75%	2 years End of the semester End of the programme

**Programme outcome 3:** Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR11A3046: Electrical Measurements and instrumentation	Design a system, component, within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	Internal/external	Lab activity data	80%	2 years
GR11A4089: Power Semiconductor Drives		Evaluation/ Assignments/ Group tasks	Rubrics Course outcome		End of the semester
GR11A3026: Computer Methods in Power Systems		Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	80%	2 years End of the semester
GR11A3077: Non-conventional Energy Sources					End of the programme
GR11A3081: Power Electronics Lab	Design a process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	Internal/external	Lab activity data	80%	2 years
GR11A3094: Utilization of Electrical Energy		Evaluation/ Assignments/ Group tasks	Rubrics Course outcome		End of the semester
GR11A3089: Switch Gear and Protection		Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	75%	2 years End of the semester
GR11A4090: Power System Operation and Control					End of the programme
GR11A4035: Electrical Distribution Systems					

**Programme outcome 4:** Ability to function on multi-disciplinary teams.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR14A1024: Business Communication and soft Skills Lab GR11A2073: Advanced English Communication Skills Lab GR14A2001: Environmental Sciences	function on multi-disciplinary	Internal/external	Lab activity data	80%	2 years
		Evaluation/ Assignments/ Group tasks	Rubrics Course outcome		End of the semester
	Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	80%	2 years End of the semester End of the programme	
		Internal/external	Lab activity data		2 years

GR11A3064: Industry Oriented Mini Project  GR11A2050: Microprocessors and Microcontrollers	Team work.	Evaluation/ Assignments/ Group tasks	Rubrics Course outcome Project data	80%	End of the semester
		Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	75%	2 years End of the semester  End of the programme

**Programme outcome 5:** Ability to identify, formulates, and solves engineering problems.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
All Engineering Subjects in the curriculum	identify, formulates, and engineering problems	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	80%	2 years End of the semester End of the programme
		Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
	solve engineering problems	Courses end survey/ Graduate Survey/ Alumni Survey	Survey reports	75%	2 years End of the semester End of the programme

**Programme outcome 6:** Understanding of professional and ethical responsibility.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR11A3077: Non conventional Energy Sources  GR14A2001: Environmental sciences	professional skills	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	80%	2 years End of the semester End of the programme
	Internal/external Evaluation/ Assignments/	Lab activity data Rubrics	80%	2 years End of the	



		Group tasks	Course outcome		semester
	Ethical skills	Courses end survey/ Graduate Survey/ Alumni survey	Survey reports	75%	2 years End of the semester End of the programme

**Programme outcome 7:** Ability to communicate effectively.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR14A1005: English GR14A1024: Business Communication and Soft Skills Lab GR11A2073: Advanced English Communication Skills Lab GR11A4110: Seminar	Communication skills	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni Survey	Survey reports	80%	2 years End of the semester End of the programme
	Interpersonal skills	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni Survey		75%	2 years End of the semester End of the programme

**Programme outcome 8:** Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR11A3064: Industry Oriented Mini Project GR14A2001: Environmental sciences GR11A4097: Major Project GR14A2035: Network Theory Workshops	Broad education of engineering solutions in a global, economic context	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome Project data	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni Survey	Survey reports	80%	2 years End of the semester End of the programme
		Internal/external Evaluation/ Assignments/	Lab activity data Rubrics	80%	2 years End of the

	engineering solutions in a environmental, and societal context	Group tasks	Course outcome		semester
		Courses end survey/ Graduate Survey/ Alumni Survey	Survey reports	75%	2 years End of the semester
					End of the programme

**Programme outcomes 9:** Recognition of the need for, and an ability to engage in life-long learning.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR14A2036: DC Machines and Transformers GR14A2043: Digital Electronics GR14A1018: Basic electrical engineering	Engage in life long learning	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni Survey	Survey data	80%	2 years End of the semester End of the programme
	Update future developments In electrical and electronics field	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni Survey	Survey data	75%	2 years End of the semester End of the programme

**Programme outcome 10:** Knowledge of contemporary issues, project management and finance.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
GR14A2104: Managerial Economics and Financial Analysis (MEFA): GR14A3102: Management Science	Knowledge of project management and finance.	Internal/external Evaluation/ Assignments/ Group tasks	Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni survey	Survey data	80%	2 years End of the semester End of the programme
	Knowledge of contemporary issues.	Internal/external Evaluation/ Assignments/ Group tasks	Rubrics Course outcome	80%	2 years End of the semester
		Courses end			2 years End of the

		survey/ Graduate Survey/ Alumni survey	Survey data	75%	semester  End of the programme
--	--	--	----------------	-----	---

**Programme outcome 11:** Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
<b>All the laboratories</b> GR14A1027: Computer Programming lab GR11A2054: Microprocessors and Microcontrollers	Study experimental, statistical and computational methods	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni survey	Survey data	80%	2 years End of the semester End of the programme
	Hands on experience in computational methods and tools necessary for engineering practice	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni survey	Survey data	75%	2 years End of the semester End of the programme

**Programme outcome 12:** Graduates will demonstrate an ability to design electrical and electronic circuits, power electronics, power systems; electrical machines analyze and interpret data and also an ability to design digital and analog systems and programming them.

Courses	Performance Criteria	Method of Assessment	Sources for data collection	Target for the performance	Length of Assessment Cycle/when the data is collected
<b>All the core engineering laboratories</b> All core engineering courses	Study experimental, statistical and computational methods	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey/ Alumni Survey	Survey data	80%	2 years End of the semester End of the programme
	Hands on experience in computational methods and tools necessary for engineering practice	Internal/external Evaluation/ Assignments/ Group tasks	Lab activity data Rubrics Course outcome	80%	2 years End of the semester
		Courses end survey/ Graduate Survey	Survey	75%	2 years End of the semester

		Survey/ Alumni data survey			End of the programme
--	--	-------------------------------	--	--	-------------------------

**d. Summaries of the results of the evaluation processes and an analysis illustrating the extent to which each of the programme outcomes are attained:**

**Evaluation and Analysis Process for the attainment of POs**

- Evaluation of examinations is done through the Examination Branch.
- Analysis of exam results is done after the results.
- All the details of results are stored as digital soft copy and printed hard copy format at the department and examination branch.
- Model data is enclosed in the annexure.
- Other internal, mid exam, lab internal data, and surveys data is maintained by the department.

**e) How the results are documented and maintained.**

- Displayed in the website.
- Filed in the department and also available with the examination branch.
- Maintained by each Course Faculty as a course file with all the results and evaluation details. These results and evaluation are informed and discussed with students.

## 2.4 Use of Evaluation results towards improvement of the programme (30)

Total Marks : 30.00

2.4.1 Indicate how results of assessment used for curricular improvements (5)

Institute Marks : 5.00

(Articulate with rationale the curricular improvements brought in after the review of the attainment of the POs)

The OBE spirit at GRIET has been introduced from 2014-15

POs& PSOs Attainment Levels and Actions for improvement – CAY only			
Pos	Target Level	Attainment Level	Observations
a: Ability to apply knowledge of mathematics, science, and engineering.			
a	100%	100%	Satisfied. All the courses are comply with PO1.
b: Ability to design and conduct experiments, as well as to analyze and interpret data.			
b	100%	100%	Satisfied. These principles are used and implemented in mini, main projects, technical seminars, workshops and laboratories.
c: Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.			
c	100%	70%	<ul style="list-style-type: none"> <li>Discussions with students and faculty members revealed that there should be a balanced between theory and lab.</li> <li>In a Lab course on Operating systems, the lab programs performed were not covered some of major concepts which is in theory.</li> </ul>
Action 1: Revision of the lab course syllabus was carried out.			
Action 2: More theory concepts are included for implementation and simulation.			
d: Ability to function on multi-disciplinary teams.			
d	100%	80%	By Analysis and Evaluation of Mini projects and main projects at UG and PG level, realized that, lagging in contribution towards open source and IT tools.
Action 1: In this academic year, some projects are identified in UG and PG to opt for opensource and modern engineering tools like android application.			
e: Ability to identify, formulates, and solves engineering problems.			
e	100%	100%	The awareness is created in every semester by conducting drills in fire safety, road safety, blood donation, cleaning(swaach Bharath), environment fest(roedo), culture feast(pulse).
f: Understanding of professional and ethical responsibility.			
f	100%	100%	Students are having zeal to involve in all of the activities like blood donation, Swaach Bharath , Participating in awareness camping etc.,.
g: Ability to communicate effectively			
g	100%	70%	Gender equality and professional ethics courses are recommended for UG level.
Action 1: To meet PO7, the courses 'Value education and ethics and gender sensitization' were			

introduced for UG level from AY 2015-16.			
h: Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.			
h	100%	80%	Satisfied. All the courses are comply with PO8.
PO9: Recognition of the need for, and an ability to engage in life-long learning.			
i	100%	85%	Students has to prepare reports on Mini project, main project and General seminar and have to give presentations for the same. This activities satisfies the PO9.
j: Knowledge of contemporary issues.			
j	100%	75%	students will be able to expolre any event, idea, opinion or topic in a given subject that is relevant to the present day.
k: Ability to utilize experimental, statistical and computational methods and tools necessary for engineering practice.			
k	100%	85%	By Analysis and Evaluation of Mini projects and main projects at UG and PG level, realized that, lagging in contribution towards open source and IT tools.
l: (PSO) Ability to create and or use Computer Science and Engineering related software tools , to get employment and succeed in higher studies.			
l	100%	80%	Identified the Recent emerging technologies by interacting with students, faculties and experts.

2.4.2 Indicate how results of assessment used for improvement of course delivery and assessment (10)

Institute Marks : 10.00

(Articulate with rationale the curricular delivery and assessment improvements brought in after the review of the attainment of the POs)

POs	Target Level	Attainment Level	Observations	Curricular Delivery Improvements	Assessment Improvements
a	100%	100%	Satisfied. All the courses are comply with PO1.	NA	NA
b	100%	100%	Satisfied. These principles are used and implemented in mini, main projects, technical seminars, workshops and laboratories.	NA	NA
c	100%	70%	Discussions with students and faculty members revealed that there should be a balanced between theory and lab.	Extra Lab Hours were given for students to practice the concepts.  The faculty strength was improved to reach out to each student in the laboratory.  Faculty were asked to spend at least one hour on the prerequisite topic before starting a complex concept to be implemented. l	After each cycle an internal lab exam was conducted.  The frequency of discussion with students is improved to identify if any gaps.  Students were made to implement a few experiments beyond syllabus
			By Analysis and	The students were asked to implement concepts based on LAMP and open source software .	The projects were made to be sold in the market by the students and the revenue is a

d	100%	80%	Evaluation of Mini projects and main projects at UG and PG level, realized that, lagging in contribution towards open source and IT tools.	The projects were made to be exhibited. Industry based extra guest lectures were conducted to inculcate more open source thoughts.	direct indication of level of project. The best identified projects were sent to industry experts for their further advices.
e	100%	100%	The awareness is created in every semester by conducting drills in fire safety, road safety, blood donation, cleaning(swaach Bharath), environment fest(roedo), culture feast(pulse).	NA	NA
f	100%	100%	Students are having zeal to involve in all of the activities like blood donation, Swaach Bharath , Participating in awareness camping etc...	NA	NA
g	100%	70%	Gender equality and professional ethics courses are recommended for UG level.	Video clips related to Gender sensitization and Female sex ratio were displayed. Students were made to form as groups and discussions on the latest issues of Professional Ethics were conducted.	Students were asked to write reviews on the video clippings they watched. The discussions were noted and points were shared with students to improve their thought process.
h	100%	75%	Students were observed to have less communication skills and team performing skills	Students were made to work as team for mini and major projects and individual participation is demanded. More number of Communication skills classes were conducted in CRT programs.	During the Project exhibitions individual student participation is evaluated. The performance of students in the recruiting organizations.
i	100%	85%	Students has to prepare reports on Mini project, main project and General seminar and have to give presentations for the same. This activities satisfies the PO9.	Student seminars were conducted on Report writing and assignments were made to be submitted for improving their report writing skills	The plagiarism software were used to discourage copy culture.
j	100%	75%	It was observed that students lack financial planning and estimation abilities	Case studies of small projects were given to estimate financial and managerial requirements	The number of students giving exact estimations were considered based on already completed projects.
k	100%	75%	Less number of students were participating in professional body activities and	Students were sensitized with importance of continous learning and sessions of extracts from professional magazines were conducted.	The number of students participating in extra curricular activities.

			membership process as well as registration for certification courses was not up to mark.	Students were encouraged to take part in moodle courses and take membership in IEEE, CSI etc associations.	Projects being funded by external resources.
1	100%	80%	Identified the Recent emerging technologies by interacting with students, faculties and experts.	Video lectures on latest technologies. Online courses on recent emerging technologies. Assignments based on latest trends.	Industry experts were included in project identification related to emerging technologies. Count of students getting Internship.

2.4.3 State the process used for revising/redefining the POs (15)

Institute Marks : 15.00

(Articulate with rationale how the results of the evaluation of the POs have been used to review/redefine the POs in line with the Graduate Attributes of the NBA.)

We have defined POs based on the NBA graduate attributes mapping to curriculum given by affiliating university JNTUH and used the feedback received from the stakeholders through surveys. The continuous process of assignments, direct and indirect assessments and evaluation will lead to the revision and refinement of the POs. We have a system to review the results of the evaluation of our outcome based education system at the end of each academic year.

After receiving results of each semester, faculty analyses the percentage of pass in his subjects and finds out the average of marks obtained in his course, in order to recommend necessary actions to improve the courses. This process considers exit students survey, professional society survey, alumni survey, employer survey, feedback and rubrics. DDMC consisting of the Head of the Department along with Board of Studies, Programme Coordinator prepares the action plan to improve the courses of the programme thus influencing the attainment of Programme Outcomes. The improvement of PO attainment can be expected by bringing appropriate changes in course outcomes, curriculum, delivery methods, and assessment and evaluation methods. After receiving inputs from the internal committees Board of Studies, Academic Council will give the final approval for the necessary improvements.

Once the action plan is defined, data for the performance indication is to be collected and analyzed and evaluated by the course coordinator to see the performance. This process continues till the performance improves to the target value

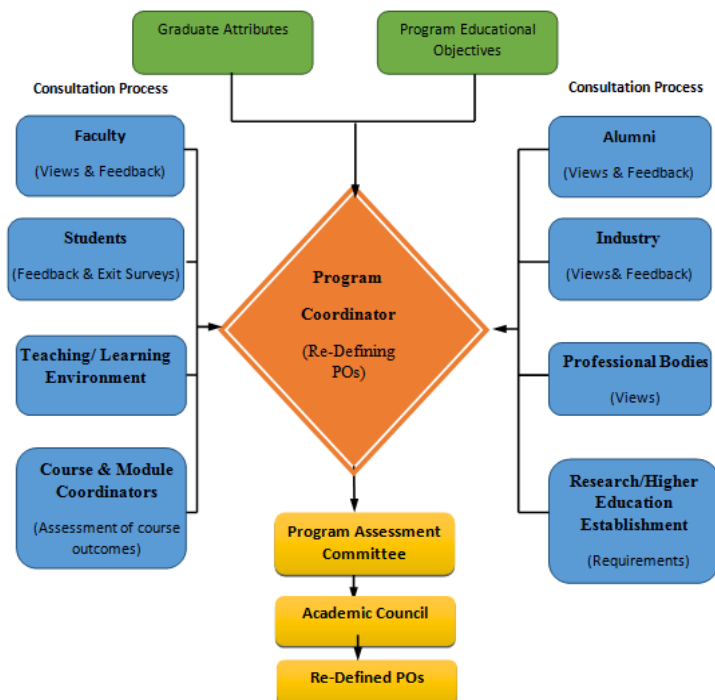


Figure 5: Process for Redefining POs

3 Programme Curriculum (125)

Total Marks : 125.00

3.1 Curriculum (20)

Total Marks : 20.00

3.1.1 Describe the Structure of the Curriculum (5)

Institute Marks : 5.00

--	--	--	--



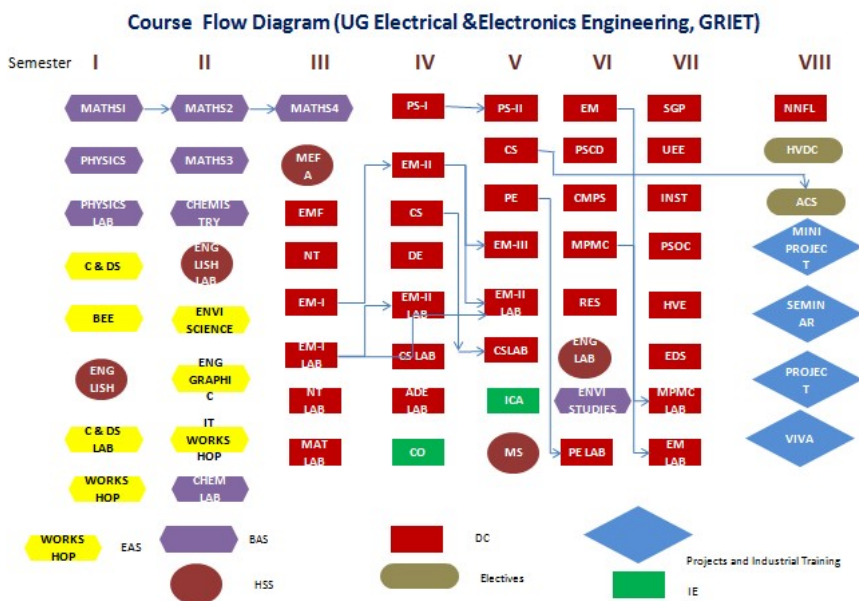
Course Code	Course Title	Total Number of contact hours				Credits
		Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
GR14A1001	Linear Algebra and Single Variable Calculus	3.00	1.00	0.00	4.00	3.00
GR14A1002	Advanced Calculus	3.00	1.00	0.00	4.00	3.00
GR14A1009	Computer Programming	3.00	1.00	0.00	4.00	3.00
GR14A1007	Engineering Physics	3.00	1.00	0.00	4.00	3.00
GR1GR14A1018	Basic Electrical Engineering	3.00	1.00	0.00	4.00	4.00
GR14A1005	English	3.00	1.00	0.00	4.00	3.00
GR14A1027	Computer Programming Lab	0.00	0.00	4.00	4.00	2.00
GR14A1029	Engineering Physics Lab	0.00	0.00	4.00	4.00	2.00
GR14A1025	Engineering Work Shop	0.00	0.00	4.00	4.00	2.00
GR14A1003	Transform Calculus and Fourier Series	3.00	0.00	1.00	4.00	3.00
GR14A1004	Numerical Methods	3.00	0.00	1.00	4.00	3.00
GR14A1008	Engineering Chemistry	3.00	0.00	1.00	4.00	3.00
GR14A1010	Data Structures	3.00	0.00	1.00	4.00	3.00
GR14A1023	Engineering Graphics	1.00	0.00	4.00	5.00	3.00
GR14A1026	IT Workshop	0.00	0.00	4.00	4.00	2.00
GR14A1030	Engineering Chemistry Lab	0.00	0.00	4.00	4.00	2.00
GR14A1024	Business Communication and Soft Skills	0.00	0.00	4.00	4.00	2.00
GR14A1019	Fundamentals of Electronics Engineering	4.00	1.00	0.00	5.00	4.00
GR14A2058	Special Functions and Complex Variables	3.00	1.00	0.00	4.00	3.00
GR14A2034	Electromagnetic Fields	4.00	1.00	0.00	5.00	4.00
GR14A2035	Network Theory	4.00	1.00	0.00	5.00	4.00
GR14A2036	DC Machines and Transformers	4.00	1.00	0.00	5.00	4.00
GR14A2037	DC Machines Lab	0.00	0.00	4.00	4.00	2.00
GR14A2038	Multisim/Networks Lab	0.00	0.00	4.00	4.00	2.00
GR14A2039	Electrical Simulation lab	0.00	0.00	4.00	4.00	2.00
GR14A2001	Environmental Science	4.00	0.00	4.00	8.00	0.00
GR14A2040	Power Generation and Distribution	4.00	1.00	0.00	5.00	4.00
GR14A2041	AC Machines	4.00	1.00	0.00	5.00	4.00
GR14A2042	Control Systems	4.00	1.00	0.00	5.00	4.00
GR14A2043	Digital Electronics	3.00	1.00	0.00	4.00	4.00
GR14A2076	Computer Organization	4.00	1.00	0.00	5.00	4.00
GR14A2044	AC Machines Lab	0.00	0.00	4.00	4.00	2.00
GR14A2045	Control Systems Lab	0.00	0.00	4.00	4.00	2.00
GR14A2046	Analog and Digital Electronics Lab	0.00	0.00	4.00	4.00	2.00
GR14A2002	Value Education and Ethics	4.00	0.00	0.00	4.00	0.00
GR14A2104	Managerial Economics and Financial Analysis	3.00	1.00	0.00	4.00	3.00
GR11A3078	Op Amps	4.00	1.00	0.00	5.00	4.00
GR11A3082	Power Transmission System	4.00	1.00	0.00	5.00	4.00
GR11A3080	Power Electronics	4.00	1.00	0.00	5.00	4.00
GR11A3046	Electrical Measurements and Instrumentation	4.00	1.00	0.00	5.00	4.00
GR11A2050	Micro processors & Micro controllers	3.00	1.00	0.00	4.00	3.00
GR11A3087	Sensors/ Measurements and Instrumentation La	0.00	0.00	4.00	4.00	2.00
GR11A3081	Power Electronics lab	0.00	0.00	4.00	4.00	2.00
GR11A2054	Microcontrollers Lab	0.00	0.00	4.00	4.00	2.00
GR11A3026	Computer Methods in Power Systems	4.00	1.00	0.00	5.00	4.00
GR14A3102	Management Science	4.00	1.00	0.00	5.00	4.00
GR11A3089	Switchgear and protection	4.00	1.00	0.00	5.00	4.00
GR11A3094	Utilization of Electrical Energy	3.00	1.00	0.00	4.00	3.00
GR11A3077	Non Conventional Sources of Energy(open elective)	4.00	1.00	0.00	5.00	4.00
GR11A2066	Signals and Systems(open elective)	4.00	1.00	0.00	5.00	0.00
GR11A2083	Operating Systems(open elective)	4.00	1.00	0.00	5.00	0.00
GR11A3083	Power Systems Lab	0.00	0.00	4.00	4.00	2.00
GR11A2073	Advanced English Communication Skills Lab	0.00	0.00	4.00	4.00	2.00
GR11A3064	Industry Oriented Mini Project	0.00	0.00	4.00	4.00	2.00
GR11A4090	Power system operation & Control	4.00	1.00	0.00	5.00	4.00

GR11A4089	Power Semiconductor Drives	4.00	1.00	0.00	5.00	4.00
GR11A4049	High Voltage DC Transmission Systems( elective 1)	4.00	1.00	0.00	5.00	0.00
GR11A2076	Data Base Management( elective 1)	4.00	1.00	0.00	5.00	0.00
GR11A4035	Electrical Distribution Systems( elective 2)	4.00	1.00	0.00	5.00	4.00
GR11A3047	Embedded Systems( elective 2)	4.00	1.00	0.00	5.00	4.00
GR11A2059	Object Oriented Programming through JAVA( elective 1)	4.00	1.00	0.00	5.00	0.00
GR11A4031	DSP based Electrical Lab	0.00	0.00	4.00	4.00	2.00
GR11A4092	Power Systems Simulation Lab	0.00	0.00	4.00	4.00	2.00
GR11A4087	Power Electronic Drives Lab	0.00	0.00	4.00	4.00	2.00
GR11A4096	Programmable Logic Controllers	3.00	1.00	0.00	4.00	3.00
GR11A4091	Power Systems Automation( elective 3)	3.00	1.00	0.00	4.00	3.00
GR11A4041	FACTS( elective 3)	3.00	1.00	0.00	4.00	0.00
GR11A3099	Web Technology( elective 3)	3.00	1.00	0.00	4.00	0.00
GR11A4034	EHV AC Transmission( elective 4)	3.00	1.00	0.00	4.00	0.00
GR11A4069	Modern Power Electronics( elective 4)	3.00	1.00	0.00	4.00	3.00
GR11A2084	Software Engineering( elective 4)	3.00	1.00	0.00	4.00	0.00
GR11A4086	PLC-Lab	0.00	0.00	4.00	4.00	2.00
GR11A4110	Seminar	0.00	0.00	4.00	4.00	2.00
GR11A4097	Major Project	0.00	0.00	10.00	10.00	10.00
GR11A4018	Comprehensive Viva	0.00	0.00	4.00	4.00	2.00
GR14A4021	Digital signal Processing	3.00	1.00	0.00	4.00	3.00
Total		178.00	44.00	118.00	340.00	200.00

3.1.2 Give the Prerequisite flow chart of courses (5)

Institute Marks : 5.00

(Draw the schematic of the prerequisites of the courses in the curriculum)



3.1.3 Justify how the programme curriculum satisfies the program specific criteria (10)

Institute Marks : 10.00

(Justify how the programme curriculum satisfies the program specific criteria specified by the American professional societies relevant to the programme under accreditation)

**Programme Specific Criteria for Electrical and Electronics Engineering**

**Lead Society:** Institute of Electrical and Electronics Engineering (IEEE)

**Applicability:**

This program criterion applies to Electrical Engineering programs that include software, software components, and electrical, electronic, or similar modifiers in their titles.

The structure of the curriculum must provide both breadth and depth across the range of engineering topics implied by the title of the program. The curriculum must include probability and statistics, including applications appropriate to the program name; mathematics through differential and integral calculus; sciences (defined as biological, chemical, or physical science); and engineering topics (including computing science) necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components. The curriculum for programs containing the modifier “electrical” in the title must include advanced mathematics, such as differential equations, linear algebra, complex variables and discrete mathematics.

The programme has defined six disciplinary areas

- English
- Mathematics
- Science
- Core Engineering
- Allied Engineering
- Management

#### English:

S.No	Code	Title of the Course
1	GR14A1005	English
2	GR14A1024	English Language Communication Skills Lab
3	GR11A2073	Advanced English Communication Skills Lab

#### Mathematics:

Mathematics through differential and integral calculus, probability and statistics, advanced mathematics such as differential equations, linear algebra, complex variables, and discrete mathematics.

S.No	Code	Title of the Course
1	GR14A1001	LINEAR ALGEBRA AND SINGLE VARIABLE CALCULUS
2	GR14A1002	ADVANCED CALCULUS
3	GR14A1003	TRANSFORM CALCULUS AND FOURIER SERIES
4	GR14A1004	NUMERICAL METHODS

#### Sciences (defined as biological, chemical, or physical science)

S.No	Code	Title of the Course
1	GR14A1007	Engineering Physics
2	GR14A1029	Engineering Physics Lab
3	GR14A1025	Engineering Workshop Lab
4	GR14A1008	Engineering Chemistry
5	GR14A1030	Engineering Chemistry Lab

#### Core Engineering

S.No	Code	Title of the Course
1	GR14A1019	Basic Electrical and Electronics Engineering
2	GR14A2034	Electromagnetic Fields
3	GR14A2034	Network Theory
4	GR14A2036	DC machines and transformers
5	GR14A2037	DC Machines Lab
6	GR14A2040	Power Generation and Distribution
7	GR14A2041	AC Machines
8	GR14A2042	Control Systems

9	GR14A2043	Digital Electronics
10	GR14A2044	AC Machines Lab
11	GR14A2045	Control Systems Lab
12	GR14A2046	Analog and Digital Electronics Lab
13	GR11A3078	OpAmps
14	GR11A3082	Power Transmission System
15	GR11A3080	Power Electronics
17	GR14A2045	Control Systems Lab
18	GR11A3046	Electrical Measurements
19	GR11A4089	Power Semiconductor Drives
20	GR11A3077	Renewable Energy Sources
21	GR11A3094	Utilization of Electrical Energy
22	GR11A3089	Switch Gear and Protection
23	GR11A4090	Power System Operation and Control
25	GR11A4035	Electrical Distribution Systems
27	GR11A3087	Electrical Measurements Lab
28	GR11A4049	HVDC Transmission
29	GR11A3026	Computer Methods in Power Systems

### Allied Engineering

1	GR14A1009	Computer Programming
2	GR14A1010	Data Structures
3	GR14A1027	Computer Programming lab
3	GR14A2076	Computer Organization
4	GR11A2050	Micro processors & Micro controllers
5	GR11A2054	Micro processors & Micro controllers Lab
6	GR14A1026	IT Workshop

### Management:

S.NO	Code	Short Form	Title of the Course
1	GR14A2104	MEFA	Managerial Economics and Financial Analysis
2	GR14A3102	MS	Management Science

3.2 State the components of the curriculum and their relevance to the POs and the PEOs (15)

Total Marks : 15.00

Institute Marks : 15.00

Programme curriculum grouping based on different components

Course Component	Curriculum Content (% of total number of credits of the programme )	Total number of contact hours	Total Number of credits	POs	PEOs
Mathematics	8	20.00	16.00	a,b,d,e,g,h,9,10,11,12	1,2
Science	6	18.00	12.00	a,b,c,d,e,f,h,i,j,k	1,2
Computing	12.5	31.00	25.00	a,b,c,d,e,f,g,h,i,j,k,l	1,2,4
Humanities	9	30.00	18.00	b,c,d,e,f,g,h,i,j,k,l	1,2,3,4
Professional core	64.5	162.00	129.00	a,b,c,d,e,f,g,h,i,j,k,l	1,2,3,4

### 3.3 State core engineering subjects and their relevance to Programme Outcomes including design experience (60)

**Total Marks : 60.00**

Institute Marks : 60.00

#### Core Engineering Courses

##### Network theory

Students will get concepts on magnetic circuits, Network topology, single and three phase circuits, transient analysis, ABCD, Z, Y parameters, filters.

##### Electrical Machines

Students will get design concepts on DC generators-motors, Transformers, AC generators-motors, Special motors, Characteristics and their testing.

##### Power Systems

Students will get design concepts on construction and working of thermal power stations, Gas and Nuclear power stations, Hydro electric power generations, power from solar, wind, geo thermal, Wave, Tidal, OTEC, biomass, MSD, fuel cells- turbines, AC,DC distribution systems substations, GIS, tariff calculation, Transmission lines, sag calculation, overhead, underground power transmission, single circuit, double circuit line, pi-delta networks, short and medium transmission line, frequency control, voltage control, power factor control, active and reactive power control, governor, AVR, Swing equation, circuit breakers and Relays.

##### Control systems

Students will get design concepts on open loop, closed loop control systems, feed forward and feedback control systems, time response and frequency response of continuous and digital control systems, transfer function, Laplace transforms, Z transforms, Routh criteria, root locus, Polar plot, Nyquist plot, Bode plot, stability, Controllability, Observability, Signal flow graphs, Mason's gain formula, MIMO Systems, PD,PI, PID Controllers and State variable analysis.

##### Power Electronics

Students will get design concepts on switches, diodes, Thyristor, IGBT, BJT, MOSFET, MCT, MTO, IGCT, Transistors. Rectifiers, Inverters, Cyclo converters, Choppers, Commutation, triggering, Snubber circuits, PWM switching patterns, modulation, Harmonics and Filters

##### Electromagnetic Fields

Students will get knowledge on various fields and its importance in electromagnetics. Different laws will give the brief idea on electromagnetic. Pointing vectors, Gauss theorem explains the field operations. Maxwell equations with time varying fields give the overall importance of electromagnetic theory in real world applications. Students will acquire the knowledge on communications, antennas and wave propagation, microwave engineering, wireless communication and its related advanced communication and Radio Frequency Applications. Wireless networks along with the techniques available to establish a communication line between two parties. They should design a project implementing the multiple access techniques over wireless medium between two mobile nodes, distinguishing the forward and reverse channels over the medium ensuring the effective full-duplex communication. Students can be assessed based on their project work, assessments and course work. Students will get to know the information on antennas classifications.

##### Digital Electronics

The students will examine the basic ideas and techniques with Boolean fundamentals, logic gate principles, combinational and sequential circuits' principles. The course also provides an understanding of simplification of the logic circuits with K-Maps with different aspects. The course intended to introduce students with challenging engineering design problems. Course uses a problem-based design approach to learning. Students will familiarize design problems. Multiplexers, Demultiplexers, Flipflops, counters and registers with state transition diagrams. Students to go beyond design and implementation. Project requirements definitely contribute to design systems to meet desired needs.

##### C and Data structures

This course introduces the requirement of different data structures in computer science area and wide applications of them. Students are exposed to both linear and non-linear data structures and basic operations like searching insertion deletion and sorting. All the data structures along with the operations are practically implemented using C language. Every student is given a scenario where some basic programming has to be implemented using a specific data structure as home assignment. This enables the student to explore the concepts learnt and identify which data structure suits the objective. Apart from this the student answers the tutorial papers which are designed in a pattern of guided enquiry learning. With this exercise the student raises interest in the subject as well as improves his learning methodologies.

#### Core engineering courses and their relevance to POs:

Program Outcomes	a	b	c	d	e	f	g	h	i	j	k	L
<b>Courses</b>												
Engineering Physics	X	X	X		X			X		X		
Electrical Machines-I	X	X	X	X	X	X	X	X	X		X	X
Electric Circuits	X	X	X		X				X	X		
Electronic devices and Circuits	X	X	X		X			X	X	X		
Power Electronics	X	X	X	X	X	X	X	X	X	X	X	X

Electro Magnetic Field Theory	X	X		X	X		X					X
Electronic Circuits	X	X	X		X	X		X	X			X
Control Systems	X	X	X	X	X	X	X	X	X	X	X	X
Power Systems-I	X	X	X		X				X	X		
Power Systems-II	X	X	X		X				X	X		
Electrical Machines-II	X	X	X	X	X	X	X	X	X		X	X
Electrical Measurements	X	X										
Power Semi Conductor Drives	X	X	X				X				X	X
Electrical Machines-III	X	X	X	X	X	X	X	X	X		X	X
Computer Methods in Power Systems	X	X	X				X				X	X
Power System Operation and Control	X	X			X	X						
Power System Analysis	X	X			X	X						
Utilization of Electrical Energy	X			X	X							X
High voltage Engineering	X			X	X							X
Advanced Control Systems	X	X	X	X	X	X	X	X	X	X	X	X
Instrumentation	X	X	X		X	X	X	X	X	X	X	X
Electrical Distribution Systems	X	X	X	X	X	X	X	X	X	X	X	X
Switchgear and protection	X	X	X		X			X	X	X	X	X

### 3.4 Industry interaction/internship (10)

**Total Marks : 10.00**

Institute Marks : 10.00

(Give the details of industry involvement in the programme such as industry-attached laboratories and partial delivery of courses and internship opportunities for students)

Students are encouraged to take internship in the leading industries to get overall expertise on the engineering education in academically relevant work during semester break or vacation time.

Industrial visits are organized to the students along with the faculty members to bridge the gap between theoretical and practical aspects of the curriculum. Experts from industry are invited to interact with the students in every semester so that the students get the latest technical developments in the industry. Department are having collaborations with the reputed industries and professional bodies so as to bridge the gap between learning and people who are actually practicing technologies.

- An expert from Industry is chosen as an active member of Academic Council also in Departments Board of Studies with a very important role in design of the curriculum.
- The institution has MOU'S with reputed organizations like Future Tech pvt ltd to strengthen the relationships with industry.
- Department is active member with TCS campus connect program.
- Students are encouraged to get internship with noted and related industry for their Industry Oriented projects to gain hands on experience of a live industry which carries credit scores.
- Students are encouraged to take realistic problems of live problems from industry while carrying out the main project which is part of the final semester curriculum carrying credits
- The department also conducts several workshops on B.Tech students and invites experts from Industry to share knowledge and experience.
- Entering into agreement with consultancies for providing resources and inputs to UG students for industry orientation programs, for faculty and joint development of innovative products.
- Department organizes several workshops with industry experts for the benefit of the students.

Event name	Any other contributory Inst./ Industry	Developed/ organized by	Resource Persons	Target Audience	Benefits
Industrial Training	BHEL	E.Venkateshwarlu	G.M -BHEL	Second year EEE Students	Case study on industrial machines such as AC and DC machines.
Industrial Training	NTPC	Dr.J.Praveen	GM-NTPC	Second year EEE Students	Case study on power plant –power generation-transmission lines-working of boiler-turbine
Internship	Airport Authority of Airport	V.Vijayaramaraju	GM-AAI	Third year EEE Students	Operation of gyro, Measuring instruments, ATC.
Internship	HWPM	V.Vijayaramaraju	GM	Second year EEE Students	Electrical machines,measuring instruments,PLC
Industrial Training	BHEL	E.Venkateshwarlu	G.M -BHEL	Third year EEE Students	Case study on industrial machines such as AC and DC machines.
Internship	SIEMENS	V.Vijayaramaraju	SIEMENS-HRD	Second year EEE Students	Automatic relays, sensors, inverters, rectifiers and choppers
LABVIEW	GRIET	V.HimaBindu	V.Vijayaramaraju	III Year Students	Helpful for projects
EAGLE	GRIET	G.Swapna	Dr.D.V.Pushpalatha	III Year Students	Helpful for projects
				IV Year	

PROTEUS	GRIET	Dr.D.V.Pushpalatha	V.Vijayaramaraju	Students	Helpful for projects
NADCON Workshop	GRIET	Dr.J.Sridevi	V.Vijayaramaraju	Faculty	Helpful in improvement of education
Staff Development Programme Workshop	GRIET	Dr.J.Praveen	Dr.J.Praveen	Faculty& Staff	Helpful in improvement of education
Mission 10X	Wipro Technologies	Organized by GRIET	Mr. Srinivas	Faculty	Teaching Methodologies
IRM	IIT Bombay	Syed Sarfaraz Nawaz	Vijayaramaraju	Faculty & Staff	Helpful in improvement of education
AAKASH FOR EDUCATION	IIT Bombay	Organized by GRIET	P. S. Raju (Director)	Faculty & Staff	Helpful in improvement of education

### 3.5 Curriculum Development (15)

**Total Marks : 15.00**

3.5.1 State the process for designing the programme curriculum (5)

Institute Marks : 5.00

(Describe the process that periodically documents and demonstrates how the programme curriculum is evolved considering the PEOs and the POs)

The programme curriculum is designed by BOS to meet and comply with PEOs, POs and to realize vision & mission. The BOS has the composition of members as per the UGC guidelines and shall meet twice in a year to review the programme curriculum. The recommendations of BOS shall be approved by Academic council for the implementation.

Schematic representation of the Curriculum Development:

The Curriculum of the department has great importance on deep understanding of fundamental principles and state of the art knowledge in Electrical and Electronics Engineering. The curriculum is updated if and when required, by taking the inputs from Program specific Criteria specified by professional society's and stake holders.

Based on the current technology evolution and inputs of stakeholders, summary of result analysis, assessment of Course outcomes, Program Outcomes and Programme Educational Objective outcomes are considered in listing out the necessity for curriculum changes. Necessary changes are incorporated in the existing curriculum which is identified by the course coordinator/instruction and respective domain coordinator. Necessity in the changes for the existing curriculum shall be presented before Department Monitoring Committee(DMC) for further refinement.

DMC thoroughly verifies the need for change in the curriculum and suggest modification if required. Final draft of changes shall be presented before Board of Studies (BoS) for approval and seeks modification where ever required.

Once DMC gets approval from BoS, final copy of the curriculum is presented before Academic Council (AC) for final approval. After approval of AC the curriculum is brought into existence.

The respective courses are taught for one full semester, the attainments are checked at the end of semester if attainments are not meeting the desired values, the attainments shall be presented before BoS along with observations of the course and domain coordinators and DMC for improving the attainment level in subsequent semesters.

3.5.2 Illustrate the measures and processes used to improve courses and curriculum (10)

Institute Marks : 10.00

(Articulate the process involved in identifying the requirements for improvements in courses and curriculum and provide the evidence of continuous improvement of courses and curriculum)

To identify the curricular gaps for attainment of COs/POs we have followed these methods:

1. Course feedback collected from the students is analyzed to measure the gap for attainment of COs and POs.
2. Faculty surveys are considered to identify curriculum gaps for attainment of CO's and PO's. Faculty inputs are valuable because they understand student comprehension and learning abilities better.
3. Based on the COs and POs and using result analysis and surveys, the curricular gaps are ascertained.
4. 'Student Exit surveys' are collected to identify curriculum gaps and the requisite skills for their future endeavors in their career paths.
5. Surveys are conducted with industry and the employers of our students, regarding their expectations from our graduates, which are then matched with our COs and POs.
6. Panel discussions are organized with focus groups such as IE(Institute of Engineering), ISTE(International Society for Technology in Education), IEEEE(Institute of Electrical and Electronics Engineers),PES(Power and Energy Society)
7. Institution of Valuers, and other professional bodies to identify the curricular gaps.
8. Feedback is collected from the alumni who has joined in the professional careers or pursuing higher studies or has become entrepreneurs.
9. The required achievement level of Graduates Attributes are observed to identify gaps in attainment of COs and POs.

The feedback and surveys being utilized in the process are aimed at analyzing and discerning the extent to which the outcomes are addressed. This includes analysis for missing out on outcomes, by students in case of change in electives; the extent of support by pedagogy and assessments in the development of the students; the attainment of required skills and qualities by students for professional growth. Inputs and suggestions on improvements in courses after result analysis from course coordinators, Guest lecture, web content, video lectures and additional power point presentations of the course shared with the students for further strengthening the course outcomes.

### 3.6 Course Syllabi (5)

**Total Marks : 5.00**

Institute Marks : 5.00

(Include, in appendix, a syllabus for each course used. Syllabi format should be consistent and shouldn't exceed two pages.)

The syllabi format may include:

- Department, course number, and title of course
- Designation as a required or elective course
- Pre-requisites

- Contact hours and type of course (lecture, tutorial, seminar, project etc.,)
- Course Assessment methods(both continuous and semester-end assessment)
- Course outcomes
- Topics covered
- Text books, and/or reference material

File Name
<a href="#">EEE Syllabus GR11 Regulation</a>
<a href="#">EEE Syllabus GR14 Regulation</a>

The Course Syllabi of Electrical Engineering programme consists of general guidelines, academic requirements, attendance requirements, credit requirements and details about curriculum. Each semester modules are given in which courses and laboratory required content is provided. Details about elective subjects and requirement about seminar, comprehensive viva, mini and major project is provided. Finally a requirement for the award of the degree is given.

The syllabi format includes:

- Department, course number, and title of course Designation as a required or elective course
- Contact hours and type of course (lecture, tutorial, seminar, project etc.)
- Course Assessment methods (both continuous and semesterend assessment) Course Outcomes
- Topics covered
- Text books, and/or reference material

#### 4 Students' Performance (75)

**Total Marks : 63.52**

#### Admission intake in the programme

Item	2015-2016	2014-2015	2013-2014	2012-2013	2011-2012	2010-2011	2009-2010
Sanctioned intake strength in the programme	120	120	120	120	120	120	120
Total number of admitted students in first year minus number of students migrated to other programmes at the end of 1st year (N1)	116	111	118	117	120	120	120
Number of admitted students in 2nd year in the same batch via lateral entry (N2)	0	24	24	24	24	24	12
Total number of admitted students in the programme N = (N1 + N2)	116	135	142	141	144	144	132

#### 4.1 Success Rate (20)

**Total Marks : 18.00**

Institute Marks : 18.00

Provide data for the past seven batches of students

Year of entry (in reverse chronological order)	Number of Students admitted in 1st year + admitted via lateral entry in 2nd year (N1 + N2)	Number of students who have successfully completed			
		1st year	2nd year	3rd year	4th year
2015-2016	116	0	0	0	0
2014-2015	135	67	0	0	0
2013-2014	142	96	106	0	0
2012-2013	141	100	112	122	0
2011-2012 (LYG)	144	75	113	122	133
2010-2011 (LYGm1)	144	80	123	116	127
2009-2010 (LYGm2)	132	91	90	97	120

Success rate =  $20 \times$  mean of success index (SI) for past three batches

SI = (Number of students who graduated from the programme in the stipulated period of

course duration)/(Number of students admitted in the first year of that batch

and admitted in 2nd year via lateral entry)

Item	LYG (2011-2012)	LYGm1 (2010-2011)	LYGm2 (2009-2010)
Number of students admitted in the corresponding First Year + admitted via lateral entry in 2nd year	144.00	144.00	132.00
Number of students who have graduated in the stipulated period	133.00	127.00	120.00
Success index (SI)	0.92	0.88	0.91

Average SI 0.90

Success rate 18.00

#### 4.2 Academic Performance (20)

**Total Marks : 15.29**

Institute Marks : 15.29

Academic Performance =  $2 * API$

Where API = Academic Performance Index



6/30/2016

= Mean or Cumulative Grade Point Average of all successful

Students on a 10 point CGPA System

OR

= Mean of the percentage of marks of all successful students / 10

Item	2011-2012	2010-2011	2009-2010
<b>Approximating the API by the following mid-point analysis</b>			
9 < Number of students with CGPA < 10	7.00	6.00	7.00
8 < Number of students with CGPA < 9	50.00	61.00	56.00
7 <= 8	46.00	53.00	43.00
6 <= 7	14.00	1.00	20.00
5 <= 6	27.00	23.00	6.00
Total	144.00	144.00	132.00
Approximating API By Mid-CGPA	0.00	0.00	0.00
Mean of CGPA/Percentage of all the students API	7.47	7.68	7.79
Assessment	14.94	15.36	15.58

Average assessment points 15.29

### 4.3 Placement and Higher Studies (20)

**Total Marks : 15.23**

Institute Marks : 15.23

Item	LYG 2011-2012	LYGm1 2010-2011	LYGm2 2009-2010
Number of admitted students corresponding to LYG including lateral entry (N)	144.00	144.00	132.00
Number of students who obtained jobs as per the record of placement office (x1)	62.00	39.00	64.00
Number of students who found employment otherwise at the end of the final year (x2)	12.00	18.00	10.00
Number of students who opted for higher studies with valid qualifying scores/ranks (y)	35.00	37.00	20.00
$x=x1+x2$	74.00	57.00	74.00
Assessment points	16.35	14.34	15.00

Average assessment points 15.23

### 4.4 Professional Activities (15)

**Total Marks : 15.00**

4.4.1 Professional societies / chapters and organising engineering events (3)

Institute Marks : 3.00

(Instruction: The institution may provide data for past three years).

GRIET lays stress not only on the academic excellence but also on the beyond academic excellence to make the Programme a holistic experience. This is managed by providing time and resources to allow the students to take part in Co and Extracurricular activities which are integrated and spread over the entire academic year. This we believe has a profound impact in shaping the overall personality of a student.

- The activities are pre-planned and included in the College diary.
- The activities are planned and executed by the student bodies of the college with supervision from faculty.
- Pragnya (a tech-fest) and Pulse (a cultural fest) are major annual attractions and widely participated.

To give fillip to beyond-curricular activity, the institution has encouraged registration of its student groups as members in professional societies, chapters such as: Institution of Engineers (IE), Computer Society of India (CSI), Institute of Electrical and Electronic Engineers (IEEE), Institute of Electronic and Telecommunication Engineers (IETE), Society of Automobile Engineers (SAE), Indian Society for Technical Education (ISTE), Indian Concrete Institute (ICI), Free Software Foundation (FSF), Robotics Club, Gaming Club.

The student chapters of professional societies such as IEEE, CSI, Robotic Club, and FSF have been intensely involved in Co-curricular activities giving full benefit and encouragement to the students.

#### Events organized by the professional societies/chapters during the last three years:

The much awaited environment fest of GRIET was successfully held on the 19th of February, 2015. Over Ruedo IEEE 19/02/2015 two month's hard work was put in by the NSS wing and Street Cause to organize this oneofakind fest.

Title	Professional societies	Date	Achievement/Benefit
Visit to R & D Showcase, IIITH	IEEE		R & D Showcase 2015 is the fourteenth research and project exhibition of IIITHyderabad, showcasing
Technical Talk on Internet of Things	IEEE	31/01/ 2015	The Internet of Things (IOT) is the network of physical objects or "things" embedded with electronics, software, sensors and connectivity to enable it to achieve greater value and service by exchanging data with the manufacturer, operator and/or other connected devices
Android Workshop	IEEE	5 /02/2015 & IEEE GRIET SB in collaboration with Jawahar Knowledge Center and Google conducted a twoday 6/02/2015 Workshop o Android App Development	
Student Body Meeting I	IEEE	11/02/2015	Though the session constituted of a competition among the member teams, the chief focus was to develop
		18/02/2015,	
		4/03/2015	The series of the Web Technologies Clusters helped the participants to

Web Technologies Clusters	IEEE	& 16/03/2015	understand and apply the concepts of web technologies.
Robotics Clusters	IEEE	21/02/2015 ,12/03/2015 & 04/04/2015	Emphasizing the increasing interest in Robotics in the students, the robotics cluster series helped to ensure that the participants were involved in robot making hands on sessions.
Introduction to Power and Energy Society	IEEE		The Power an Energy Society was introduced to the students of the concerned branch by Dr. Bala Subramanyam.
Selections for PE and Computer Society ExeCom	IEEE	9/03/ 2015	To ensure that the newly formed Societies of the IEEE GRIET Student Chapter are governed by Professionals, IEEE GRIET SB conducted PE and Computer Society ExeCom selections for the second and third year student members of the respective Societies.
Talk on Entrepreneurship	IEEE	13/03/ 2015	Emphasizing the need for the students and young professionals looking upon entrepreneurship as a career option to fetch a substantial understanding of the concepts of the same, the IEEE Hyderabad Section in collaboration with IEEE Young Professionals and IEEE GRIET SB conducted a talk on "Entrepreneurship"
Cognitio '15	IEEE	17/03/2015 & 31/03 2015.	The event is chiefly a contest comprising of three rounds that tests the aptitude, dexterity and reflexes as they tread along a matrix of challenges with technical questions effectively fabricated within them.
IDEAZ 15	ISTE	10/04/2015	In this competition, students from various branches put their presentation skills to test.
Guest lecture	ISTE	23/02/2015	The Students were encouraged to make the right choices in life and to overcome their weakness.
Go green – ruedo'15	ISTE	30/01/2015	" Go Green they say ! A little sapling turns into a tree, beauty in its deed ! We, at ISTE doing our part ! Go Green world.

S no.	Event	Society	Date	Benefits
1	ExeCom 2013-14 Formation	IEEE	17.12.2013	The new team of office bearers was formed to carry on the legacy of IEEE GRIET SB.
				Membership Drive is an annual flagship programme where the ExeCom Members of IEEE
			23-12-2013	GRIET SB educate the students of GRIET about the benefits to and importance of IEEE
2	Membership Drive 2013-14	IEEE	26-12-2013	Membership and to retain the previous members.
				The Industrial Visit to DRDL (Hyd.) on 31st January, 2014. A total of 35 participants have
				attended this visit headed by Dr Y.Vijayalata, the Branch Counsellor of IEEE GRIET SB. The visit proved
				quite knowledgeable, enlightening us about the achievements of India in the Defense Sector and also
3	Visit to DRDO	IEEE	31.12.2014	the dedicated work of scientists who strive to make India, a safer and stronger nation.
				Since their introduction, the SBMs have always provided a platform for the student members of IEEE
				GRIET SB to get closer to the SB, to network with students from other branches and also to mould
4	Student Body Meeting I	IEEE	18.02.2014	themselves into a complete individual.
				Clusters are a culture initiated at IEEE GRIET, where the student members get to pace up with the
				trending technologies. During the web technology clusters, HTML and other web designing languages
5	Web Technologies Cluster I	IEEE	25.02.2014	were taught to the members.
				To provide an overview of the MOM to the student fraternity,

				IEEE GRIET SB conducted a section level
				technical talk on " Chandrayaan-I, Stepping stone for Indian Mars Orbiter Mission, MOM" by
				Dr.S.M.Ahmed. In the capacity of core science team member of Chandrayaan-I mission, the speaker had
	Talk on Mars Orbiter Mission by			first hand experience in developing an indigenous science payload. The discussion involved the
				preparedness, challenges and possibilities of attaining the targeted goals by MOM.
6	Dr. S M Ahmed	IEEE	13.03.2014	
				A platform to express our views and make them matter. The literary cluster was conducted under the
7	Literary Cluster	IEEE	15.03.2014	guidance of Mrs. Sujitha Rao.
				GRIET IEEE SB conducted a talk by Mr.Madhav Negi, titled "Billoo Bhai, B.Tech" on 10th April,2014. He is
				a Senior Member of the IEEE Hyderabad Section and is currently the Sr. Manager - Sales Support at
	Talk "Billoo Bhai, B.Tech" by Dr.			Computer Sciences Corporation. He is an eminent speaker who spoke about how one can become a well-
8	Madhav Negi	IEEE	10.04.2014	rounded technical leader.
				SBM II was a networking session where the student members were segregated into groups to
9	Student Body Meeting II	IEEE	11.04.2014	accomplish a given task. The event was a huge hit.
				Live chat was a platform by IEEE GRIET SB, where the student members could interact with the
				Executive Committee and pose queries and suggest ideas.The event was conducted through a social
10	Live Chat	IEEE	13.05.2014	media platform.
				The first year students were recruited as the Junior ExeCom members in order to comprehend the
	Junior ExeCom Recruitments			working of the SB and its objectives. Ten candidates were selected who were the probables for the
11	2014	IEEE	17.07.2014	ExeCom of the upcoming year.

## 4.4.2 Organisation of paper contests, design contests, etc. and achievements (3)

Institute Marks : 3.00

(Instruction: The institution may provide data for past three years).

The Institute organizes contests in paper presentations, design contests in each department under an event title, and the details are as follows:

**PRAGNYA** is a national level annual technical symposium held at GRIET, and is one among the most popular and eagerly awaited events in Hyderabad. It is organized by the institute and conducted by the IEEE Student Branch of GRIET. The event offers a platform for students to enhance their class room knowledge in various domains and find connection with the real time world while collaterally having fun. Academically it challenges the students potential to exhibit their ideas, technical skills and prowess in their domain. The events like **Paper Contest, Poster Presentation, Design Contest, Electronic Quiz, Code-O-Mania, Web Design, Show Your Potential, Robotics, CAD Mania, Master-Caster** are conducted under the PRAGNYA Symposium.

**x-Kernel** is an annual event conducted to provide a platform for young Engineers to test their skills. This Event is organized by CSE Department. x-Kernel is not the usual programming contest. The core concept of the competition is the actual code consisting of logic and minimum time of computation. It deals with out of the box thinking where participants ransack their brains to find an accurate solution.

**Scientific Fore Step** is a technical competition wherein the students from various departments of the institution participate and show case in project design and development contest.

**Department Level Activities:**

Name of the Event Organized	Date	Target Audience	No. benefited	Achievements
Engineer's Day 2015	15-9-2015	225	225	Development of skills for leadership and communication
Pragnya-15 (Paper Contest)	8/10/2015 To 10/10/2015	II,III and IV B.Tech students	200	This event covers latest trends in Electrical Machines, Control systems, Power Systems, and Micro

Controllers				
Pragnya-14 (Paper Contest)	16/10/2014 To 17/10/2014	II,III and IV B.Tech students	200	This event covers latest trends in Electrical Machines, Control systems, Power Systems, and Micro Controllers
Pragnya-13 (Paper Contest)	03/10/2013 To 04/10/2013	II,III and IV B.Tech students	200	This event covers latest trends in Electrical Machines, Control systems, Power Systems, and Micro Controllers
x-Kernal	13/02/2015	I,II,III and IV B.Tech students	250	This event covers latest trend in Electrical and Electronics field.
x-Kernal	3/04/2014	I,II,III and IV B.Tech students	250	This event covers latest trend in Electrical and Electronics field.
Scientific Fore Step	8/04/2015	II,III and IV B.Tech Students	200	This event enhances the knowledge in project design.
Scientific Fore Step	28/02/2013	II,III and IV B.Tech Students	200	This event enhances the knowledge in project design.

## 4.4.3 Publication of technical magazines, newsletters, etc (3)

Institute Marks : 3.00

(Instruction: The institution may list the publications mentioned earlier along with the names of the editors, publishers, etc.).

GRIET is actively engaged in R & D, in encouraging research, promoting and contributing information in this sphere as is evident from the publications originating from its campus.

**e-GEM:** GRIET e-Magazine (GeM) is an e-initiative taken by Gokaraju Rangaraju Institute of Engineering and Technology (GRIET) to encourage e-culture among its students. This will also serve as a wall for students to paint their thoughts and be as creative as their minds can be. Using GeM we plan to raise the awareness of how this multifaceted internet can also serve as a medium for colleges to encourage creativity among its students. Gem will be portal for students to showcase their **often** hidden talents, be it in their literary skills or their knowledge of latest happenings in their respective field of interest.

**REFLECTIONS:** The College Magazine- "**Reflections**" truly reflects the mood and mind of GRIETians. College Editorial team brings out the reflections annually with college events, achievements, life elements in and around GRIET covering circular aspects and beyond GRIET.

**International Journal of Advanced Computing (IJAC)** is Quarterly Research Journal by GRIET and published from Hyderabad, Andhra Pradesh, India. It provides a world wide forum with innovative, practical development exposure as well as original research results on Computing Technologies. The Journal bring out the researchers and application developers from a wide range of Computing Techniques such as Statistics, Data Mining, VLSI, Nano Computing, Parallel Computing, Mobile Computing etc and is promoting high quality and novel research findings and innovative solutions to challenging Advanced Computing Problems, the Journal seeks to continuously advance the state of the art in Computing Techniques.

**International Journal of Data Engineering and Computer Science (JDEC):** As part of academic development and R&D, we have initiated this Journal with every effort to foster the values of inquisitiveness, exploration, invention. The Research community is invited to share their ideas through this Journal and publish their research work related to areas of Data Engineering and Computer Science.

**International journal of Advanced Materials Manufacturing & Characterization (IJAMMC):** The aim of IJAMMC is to promote a greater knowledge and understanding of the attributes and capabilities of all types of modern engineering materials in the context of engineering processing and characterization. The objective of this journal is to bring together experts' research ideas, advanced industry practices through various research organizations and professional engineers for sharing of knowledge, expertise and experience in the emerging trends related to advanced materials processing, manufacturing and characterization. And also make these ideas available to various academia and others to promote research in the country.

**Management Today:** An International Journal, published by Department of Management Studies, GRIET. The journal publishes the latest developments in Management Education, Practice and Profession. The principal objective is to provide a forum for academicians, researchers, and professionals in Management all over the world to promote their research, share their ideas, discuss and/or communicate their views on various issues and developments in different areas of Management. The areas of focus could include: General Management, Financial Management, Human Resource Management, Marketing Management, Production Management, Strategic Management, Management of Change, Organizational Behavior, Organizational Development, Management Information Systems, International Management, Management Accounting, Managerial Economics, etc.

Publications	Name of Magazine / newsletter	Issue	Started Year	Editor	Publisher(s)
e-Magazine	GEM	Monthly	July 2008	Ramya V	Gokaraju Rangaraju Institute of Engineering and Technology
News Letter	Reflections	Yearly	April 2001	Lakshmi Prasanna	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	International Journal of advanced computing (IJAC)	Quarterly ISSN: 0975-7686	2009	Prof. P.S.Raju	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	International Journal of Data Engineering and Computer Science (JDEC)	Yearly ISSN: 0975-8372	2009	Dr. Jandhyala N Murthy	Gokaraju Rangaraju Institute of Engineering and Technology
Journal	International Journal of Advanced Materials	Yearly	2012	Dr. Swadesh	Gokaraju Rangaraju Institute of

Journal	Manufacturing and Characterization (IJAMMC)	ISSN: 2277-3886	2012	Kumar Singh	Engineering and Technology
Journal	Management Today, International Journal of Management Studies	Half Yearly ISSN: 2230-9764	2012	Dr. P.B. Appa Rao	Gokaraju Rangaraju Institute of Engineering and Technology

4.4.4 Entrepreneurship initiatives, product designs, and innovations (3)  
(Instruction: The institution may specify the efforts and achievements.)

Institute Marks : 3.00

Entrepreneurship Development Cell takes initiatives for motivating students in product designs and innovations concerned with the individual specialty.

**Departmental Level Entrepreneurial Activities:**

Event	Event Name / Effort	Achievements
<b>2014 -2015</b>		
Entrepreneurship Initiatives	Arduino Interfacing with LabVIEW Software.	All student projects are brought to the level of manufacturing
	PCB design work shop (EAGLE software)	
Product Designs	Power supply Board, Micro Controller Kit, IGBT Driver Card, Relay Board, Stepper Motor Driver, Remote Control Home Appliances, SMPS, Power Quality Analyzer	All student projects are brought to the level of manufacturing
Innovations	Tabletop machine controls	Made as a product
<b>2013-2014</b>		
Entrepreneurship Initiatives	PCB design work shop (EAGLE software)	All student projects are brought to the level of manufacturing
Product Designs	Table Top Machines – Automation & Manual, Voltage Sensor Card, Current Sensor Card, Water Level Controller, Cage Brightening Station, Power Factor Improvement Induction Motor	All student projects are brought to the level of manufacturing
Innovations	Tabletop machine controls	Made as a product
<b>2012-2013</b>		
Entrepreneurship Initiatives	PCB design work shop (EAGLE software)	All student projects are brought to the level of manufacturing
Product Designs	Automated Starter of Induction motor using PLC, DC Drive, PIC Micro Controller, Speed Control of DC Machine using Millennium PLC and LABVIEW	All student projects are brought to the level of manufacturing
Innovations	Tabletop machine controls	Made as a product

**Institute Level Entrepreneurial Activities:**

Year	Event	Achievement/ Impact
	1. Faculty Development programme in Entrepreneurship sponsored by NSTEDB  organized by center for	

2014-15	<p>Entrepreneurship Development (CED).</p> <p>2. Conducted Guest lecture on “Industrial opportunities, Entrepreneurship and soft skills”</p> <p>3. Constituting managing committee for implementation of the scheme support for Entrepreneurial and managerial Development of SMEs through Incubators.</p>	1. Establishment of Incubation center
2013-14	<p>1. conducted a competition on exhibiting and product development.</p> <p>2. Organized a guest lecture on Creativity and innovation.</p> <p>3. Conducted Round table discussion on Employability initiatives in life sciences segment.</p>	2. Students actively joining family business.
2012-13	<p>1. conducted a CEO speak Session on “The Entrepreneurial Journey”.</p> <p>2. Conducted a guest lecture on “Entrepreneur opportunities and challenges “</p> <p>4. Submitted proposal for implementation of the scheme “support support for Entrepreneurial and managerial Development of SMEs through Incubators”.</p>	3. process and practice of entrepreneurship development, communication and inter-personal skills, creativity, problem solving, achievement motivation training.

## 4.4.5 Publications and awards in inter-institute events by students of the programme of study (3)

Institute Marks : 3.00

(Instruction: The institution may provide a table indicating those publications, which fetched awards to students in the events/conferences organised by other institutes. A tabulated list of all other student publications may be included in the appendix.)

**Inter-Institute Events by Students:**

All Technological Universities and institutions hold technical festivals annually and paper and model presentations are awarded prizes. The students of GRIET have also won many laurels over the years and this is a regular annual achievement the institute is proud of.

**Awards:**

**Design of shunt active filter for harmonic compensation in power systems** awarded as Best Paper In National conference on Electrical Sciences (NCES-2014) presented by D Rohan

**Inter-Institute Events by Students:**

S.NO	Name of student	Guide	National/international	Title of the paper
1	D Rohan	S S Nawaz(Asst Prof)	National conference on Electrical Sciences (NCES2014)	Design of shunt active filter for harmonic compensation in power systems
			International conference on Innovations in Electrical	Design of shunt active filter for harmonic

2	D Rohan	S S Nawaz(Asst Prof)	& Electronics Engineering (ICIEEE-2014)	compensation in power systems
3	R Pavan Kumar	M Srikanth(Asst Prof)	National conference on Electrical Sciences (NCES2014)	cascaded HBridge multi level inverter using selective harmonic Elimination technique
4	K Swetha	A Vinay Kumar	International conference on Innovations in Electrical & Electronics Engineering (ICIEEE-2014)	Implementation of Digital Filter to Improve Dynamic Response of a Single Phase PWM Rectifier

## 5 Faculty Contributions (175)

Total Marks : 133.90

## List of Faculty Members:

Exclusively for the Programme / Shared with other Programmes (20)

(Instruction: The institution may complete this table for the calculation of the student-teacher ratio (STR). Teaching loads of the faculty member contributing to only undergraduate programme (2nd, 3rd, and 4th year) are considered to calculate the STR.)

For CAYm2 2013-2014

Name of the faculty member	Highest Qualification	University	Year of graduation	Designation	date of joining the institution	Distribution of teaching load (%)			Number of research publications in journals and conferences	IPRs	R&D and consultancy work with amount		Holding an incubation unit	Interaction with outside world
						1st Year	UG	PG			Funding Agency	Amount		
P. S. Raju	ME/ M Tech	Andhra University	1968	Professor	05/11/1997	0.00	0.00	100.00	0	None	None	0.00	0	Institution of eminence in India
Dr.S.N.Saxena	PhD	University of Tokyo	1974	Professor	26/11/2004	0.00	100.00	0.00	10	None	None	0.00	0	None
Prof. P.M .Sarma	ME/ M Tech	Andhra University	1974	Professor	16/08/2000	0.00	100.00	0.00	12	None	None	0.00	0	None
Dr.J. Praveen	PhD	Osmania University	2007	Professor	20/02/2013	0.00	100.00	0.00	67	None	None	0.00	0	None
Dr.D.V. Pushpa Latha	PhD	Andhra University	2012	Professor	06/06/2012	0.00	100.00	0.00	9	None	None	0.00	0	None
M.Chakravarthy	ME/ M Tech	JNTUK	2005	Associate Professor	31/08/1999	0.00	0.00	100.00	11	None	None	0.00	0	None
V.Vijaya Rama Raju	ME/ M Tech	NIT Warangal	2001	Associate Professor	05/05/2005	0.00	0.00	100.00	5	None	None	0.00	0	None
J.Sridevi	ME/ M Tech	Andhra University	2006	Associate Professor	18/06/2007	0.00	100.00	0.00	7	None	None	0.00	0	None
E. Venkateswarlu	ME/ M Tech	JNTUH	2010	Associate Professor	01/08/2007	0.00	100.00	0.00	1	None	None	0.00	0	None
P Ravikanth	ME/ M Tech	BITS,Pilani	1991	Associate Professor	13/05/2014	50.00	50.00	0.00	0	None	None	0.00	0	None
D.Swathi	ME/ M Tech	JNTUH	2005	Associate Professor	11/06/2007	0.00	100.00	0.00	15	None	None	0.00	0	None
A Vinay Kumar	ME/ M Tech	JNTUK	2007	Assistant Professor	29/06/2011	0.00	100.00	0.00	8	None	None	0.00	0	None
Syed Sarfaraz Nawaz	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	0	None	None	0.00	0	None
M. Srikanth	ME/ M Tech	JNTUH	2008	Assistant Professor	08/10/2007	0.00	100.00	0.00	0	None	None	0.00	0	None
P.Praveen Kumar	ME/ M Tech	JNTUH	2008	Assistant Professor	08/10/2007	0.00	100.00	0.00	0	None	None	0.00	0	None
R. Anil Kumar	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	1	None	None	0.00	0	None
U Vijaya Lakshmi	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	1	None	None	0.00	0	None
G Swapna	ME/ M Tech	JNTUH	2008	Assistant Professor	05/10/2009	0.00	100.00	0.00	1	None	None	0.00	0	None
V Hima Bindu	ME/ M Tech	JNTUH	2012	Assistant Professor	03/03/2010	50.00	50.00	0.00	1	None	None	0.00	0	None
Y Satya Vani	ME/ M Tech	JNTUH	2014	Assistant Professor	02/03/2010	50.00	50.00	0.00	0	None	None	0.00	0	None

S Radhika	ME/ M Tech	JNTUH	2011	Assistant Professor	14/06/2011	0.00	100.00	0.00	0	None	None	0.00	0	None
V V S Madhuri	ME/ M Tech	JNTUK	2007	Assistant Professor	30/06/2011	50.00	50.00	0.00	2	None	None	0.00	0	None
M Naga Sandhya Rani	ME/ M Tech	JNTUH	2015	Assistant Professor	04/07/2011	0.00	100.00	0.00	2	None	None	0.00	0	None
G Sandhya Rani	ME/ M Tech	JNTUH	2011	Assistant Professor	11/07/2011	50.00	50.00	0.00	1	None	None	0.00	0	None
B Vasanth Reddy	ME/ M Tech	NIT,Rourkela	2010	Assistant Professor	05/06/2012	0.00	100.00	0.00	4	None	None	0.00	0	None
P Sri Vidya Devi	ME/ M Tech	JNTUH	2008	Assistant Professor	08/06/2012	0.00	100.00	0.00	2	None	None	0.00	0	None
M Rekha	ME/ M Tech	JNTUK	2012	Assistant Professor	26/05/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P Sirisha	ME/ M Tech	JNTUH	2012	Assistant Professor	31/05/2012	100.00	0.00	0.00	0	None	None	0.00	0	None
V Usha Rani	ME/ M Tech	Andhra University	2009	Assistant Professor	10/12/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P Prashanth Kumar	ME/ M Tech	JNTUH	2011	Assistant Professor	14/12/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P Saraswathi	ME/ M Tech	JNTUH	2010	Assistant Professor	19/06/2013	0.00	100.00	0.00	0	None	None	0.00	0	None
D.Ramya	B.E/B.Tech	JNTUH	2009	Assistant Professor	26/07/2010	0.00	100.00	0.00	0	None	None	0.00	0	None
K.Sireesha	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	0	None	None	0.00	0	None
D.Anusha	ME/ M Tech	JNTUH	2011	Assistant Professor	12/06/2012	0.00	100.00	0.00	0	None	None	0.00	0	None
M.Ramesh	ME/ M Tech	JNTUH	2012	Assistant Professor	17/12/2012	0.00	100.00	0.00	0	None	None	0.00	0	None
K.Sreshtha	ME/ M Tech	JNTUH	2013	Assistant Professor	16/06/2013	50.00	50.00	0.00	0	None	None	0.00	0	None

For CAYm1 2014-2015

Name of the faculty member	Highest Qualification	University	Year of graduation	Designation	date of joining the institution	Distribution of teaching load (%)			Number of research publications in journals and conferences	IPRs	R&D and consultancy work with amount		Holding an incubation unit	Interaction with outside world
						1st Year	UG	PG			Funding Agency	Amount		
P. S. Raju	ME/ M Tech	Andhra University	1968	Professor	05/11/1997	0.00	0.00	100.00	18	None	None	0.00	0	Institution of eminence in India
Dr.J Praveen	PhD	Osmania University	2007	Professor	20/02/2013	0.00	100.00	0.00	78	None	None	0.00	0	None
Dr.D.V. Pushpa Latha	PhD	Andhra University	2012	Professor	08/06/2012	0.00	100.00	0.00	15	None	None	0.00	0	None
Dr. J. Sridevi	PhD	JNTUH	2014	Professor	18/06/2007	0.00	100.00	0.00	8	None	None	0.00	0	None
Dr.D G Padhan	PhD	IIT,Guwahati	2012	Professor	17/12/2014	0.00	100.00	0.00	20	None	None	0.00	0	None
Dr S. V. Jayaram Kumar	PhD	IIT,Kanpur	2000	Professor	26/12/2014	0.00	100.00	0.00	10	None	None	0.00	0	None
V.Vijaya Rama Raju	ME/ M Tech	NIT Warangal	2001	Associate Professor	05/05/2005	0.00	0.00	100.00	5	None	None	0.00	0	None
E. Venkateswarlu	ME/ M Tech	JNTUH	2010	Associate Professor	01/08/2007	0.00	0.00	100.00	1	None	None	0.00	0	None
P Ravikanth	ME/ M Tech	BITS,Pilani	1991	Associate Professor	13/05/2014	50.00	50.00	0.00	0	None	None	0.00	0	None
A Vinay Kumar	ME/ M Tech	JNTUK	2007	Assistant Professor	29/06/2011	0.00	0.00	100.00	10	None	None	0.00	0	None
Syed Sarfaraz Nawaz	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	0.00	100.00	2	None	None	0.00	0	None
M. Srikanth	ME/ M Tech	JNTUH	2008	Assistant Professor	08/10/2007	0.00	0.00	100.00	1	None	None	0.00	0	None
P.Praveen Kumar	ME/ M Tech	JNTUH	2008	Assistant Professor	08/10/2007	0.00	100.00	0.00	0	None	None	0.00	0	None
R. Anil Kumar	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	1	None	None	0.00	0	None
U Vijaya Lakshmi	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	50.00	50.00	0.00	1	None	None	0.00	0	None
G Swapna	ME/ M Tech	JNTUH	2008	Assistant Professor	05/10/2009	0.00	100.00	0.00	1	None	None	0.00	0	None
V. Hima Bindu	ME/ M Tech	JNTUH	2012	Assistant Professor	03/03/2010	50.00	50.00	0.00	1	None	None	0.00	0	None
Y. Satya Vani	ME/ M Tech	JNTUH	2014	Assistant Professor	02/03/2010	0.00	100.00	0.00	0	None	None	0.00	0	None
S. Radhika	ME/ M Tech	JNTUH	2011	Assistant Professor	14/06/2011	50.00	50.00	0.00	0	None	None	0.00	0	None



V. V. D. Madhuri	ME/ M Tech	JNTUK	2007	Assistant Professor	30/06/2011	0.00	100.00	0.00	2	None	None	0.00	0	None
M.Naga Sandhya Rani	ME/ M Tech	JNTUH	2015	Assistant Professor	04/07/2011	0.00	100.00	0.00	2	None	None	0.00	0	None
G.Sandhya Rani	ME/ M Tech	JNTUH	2011	Assistant Professor	11/07/2011	0.00	100.00	0.00	1	None	None	0.00	0	None
B.Vasanth Reddy	ME/ M Tech	NIT,Rourkela	2010	Assistant Professor	05/06/2012	0.00	100.00	0.00	4	None	None	0.00	0	None
P.Sri Vidya Devi	ME/ M Tech	JNTUH	2008	Assistant Professor	08/06/2012	50.00	50.00	0.00	5	None	None	0.00	0	None
M. Rekha	ME/ M Tech	JNTUK	2012	Assistant Professor	26/05/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P.Sirisha	ME/ M Tech	JNTUH	2012	Assistant Professor	31/05/2012	0.00	100.00	0.00	2	None	None	0.00	0	None
V. Usha Rani	ME/ M Tech	Andhra University	2009	Assistant Professor	10/12/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P. Prashanth Kumar	ME/ M Tech	JNTUH	2011	Assistant Professor	14/12/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P.Saraswathi	ME/ M Tech	JNTUH	2010	Assistant Professor	19/06/2013	0.00	100.00	0.00	0	None	None	0.00	0	None
D. Karuna Kumar	ME/ M Tech	JNTUH	2012	Assistant Professor	01/12/2009	0.00	100.00	0.00	0	None	None	0.00	0	None
K. Sudha	ME/ M Tech	Anna University	2008	Assistant Professor	12/08/2014	0.00	100.00	0.00	1	None	None	0.00	0	None
M.Sashidhar	ME/ M Tech	NIT,Tirichy	2014	Assistant Professor	04/09/2014	0.00	100.00	0.00	0	None	None	0.00	0	None
M.Karthika	ME/ M Tech	JNTUK	2011	Assistant Professor	15/09/2014	0.00	100.00	0.00	1	None	None	0.00	0	None
D.Chandra Shekar	ME/ M Tech	IISC,Bangalore	2014	Assistant Professor	07/11/2014	0.00	100.00	0.00	1	None	None	0.00	0	None
M. Prashanth	ME/ M Tech	JNTUH	2014	Assistant Professor	15/12/2014	0.00	100.00	0.00	0	None	None	0.00	0	None
M. Lohita	ME/ M Tech	JNTUH	2009	Assistant Professor	24/04/2015	100.00	0.00	0.00	0	None	None	0.00	0	None
D.Rohan	ME/ M Tech	GRIET	2014	Assistant Professor	11/09/2014	0.00	100.00	0.00	0	None	None	0.00	0	None
M.Shekar	ME/ M Tech	JNTUH	2011	Assistant Professor	10/07/2014	0.00	100.00	0.00	0	None	None	0.00	0	None

For CAY 2015-2016

Name of the faculty member	Highest Qualification	University	Year of graduation	Designation	date of joining the institution	Distribution of teaching load (%)			Number of research publications in journals and conferences	IPRs	R&D and consultancy work with amount		Holding an incubation unit	Interaction with outside world
						1st Year	UG	PG			Funding Agency	Amount		
P. S. Raju	ME/ M Tech	Andhra University	1968	Professor	05/11/1997	0.00	0.00	100.00	18	None	None	0.00	0	Institution of eminence in India
Dr.J Praveen	PhD	Osmania University	2007	Professor	20/02/2013	0.00	100.00	0.00	79	None	None	0.00	0	None
Dr.D.V.Pushpa Latha	PhD	Andhra University	2012	Professor	08/06/2012	0.00	100.00	0.00	30	None	None	0.00	0	None
Dr. J. Sridevi	PhD	JNTUH	2014	Professor	18/06/2007	0.00	100.00	0.00	12	None	None	0.00	0	None
Dr.D.G.Padhan	PhD	IIT,Guwahati	2012	Professor	17/12/2014	0.00	100.00	0.00	22	None	None	0.00	0	None
Dr S.V.Jayaram Kumar	PhD	IIT,Kanpur	2000	Professor	26/12/2014	0.00	100.00	0.00	26	None	None	0.00	0	None
Prof. V.Vijaya Rama Raju	ME/ M Tech	NIT Warangal	2001	Associate Professor	05/05/2005	0.00	0.00	100.00	7	None	None	0.00	0	None
Prof. E. Venkateswarlu	ME/ M Tech	JNTUH	2010	Associate Professor	01/08/2007	0.00	0.00	100.00	0	None	None	0.00	0	None
P. Ravikanth	ME/ M Tech	BITS,Pilani	1991	Associate Professor	13/05/2014	0.00	0.00	100.00	0	None	None	0.00	0	None
A. Vinay Kumar	ME/ M Tech	JNTUK	2007	Associate Professor	29/06/2011	0.00	0.00	100.00	10	None	None	0.00	0	None
Syed Sarfaraz Nawaz	ME/ M Tech	JNTUH	2010	Associate Professor	23/06/2008	0.00	0.00	100.00	5	None	None	0.00	0	None
M. Srikanth	ME/ M Tech	JNTUH	2008	Assistant Professor	08/10/2007	0.00	100.00	0.00	1	None	None	0.00	0	None
P.Praveen Kumar	ME/ M Tech	JNTUH	2008	Assistant Professor	08/10/2007	0.00	100.00	0.00	1	None	None	0.00	0	None
R. Anil Kumar	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	1	None	None	0.00	0	None
U. Vijaya Lakshmi	ME/ M Tech	JNTUH	2010	Assistant Professor	23/06/2008	0.00	100.00	0.00	1	None	None	0.00	0	None
G. Swapna	ME/ M Tech	JNTUH	2008	Assistant Professor	05/10/2009	0.00	100.00	0.00	1	None	None	0.00	0	None

V. Hima Bindu	ME/ M Tech	JNTUH	2012	Assistant Professor	03/03/2010	50.00	50.00	0.00	1	None	None	0.00	0	None
Y. Satya Vani	ME/ M Tech	JNTUH	2014	Assistant Professor	02/03/2010	0.00	100.00	0.00	0	None	None	0.00	0	None
S. Radhika	ME/ M Tech	JNTUH	2011	Assistant Professor	14/06/2011	50.00	50.00	0.00	2	None	None	0.00	0	None
V V S Madhuri	ME/ M Tech	JNTUK	2007	Assistant Professor	23/06/2011	50.00	50.00	0.00	2	None	None	0.00	0	None
M .Naga Sandhya Rani	ME/ M Tech	JNTUH	2015	Assistant Professor	04/07/2011	0.00	100.00	0.00	4	None	None	0.00	0	None
G. Sandhya Rani	ME/ M Tech	JNTUH	2011	Assistant Professor	11/07/2011	0.00	100.00	0.00	1	None	None	0.00	0	None
B. Vasanth Reddy	ME/ M Tech	NIT,Rourkela	2010	Assistant Professor	05/06/2012	0.00	100.00	0.00	9	None	None	0.00	0	None
P. Sri Vidya Devi	ME/ M Tech	JNTUH	2008	Assistant Professor	08/06/2012	0.00	100.00	0.00	9	None	None	0.00	0	None
M. Rekha	ME/ M Tech	JNTUK	2012	Assistant Professor	26/05/2012	0.00	100.00	0.00	2	None	None	0.00	0	None
P. Sirisha	ME/ M Tech	JNTUH	2012	Assistant Professor	31/05/2012	0.00	100.00	0.00	2	None	None	0.00	0	None
V.Usha Rani	ME/ M Tech	Andhra University	2009	Assistant Professor	10/12/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P. Prashanth Kumar	ME/ M Tech	JNTUH	2011	Assistant Professor	14/12/2012	0.00	100.00	0.00	1	None	None	0.00	0	None
P. Saraswathi	ME/ M Tech	JNTUH	2010	Assistant Professor	19/06/2013	0.00	100.00	0.00	2	None	None	0.00	0	None
D. Karuna Kumar	ME/ M Tech	JNTUH	2012	Assistant Professor	01/12/2009	0.00	100.00	0.00	1	None	None	0.00	0	None
K. Sudha	ME/ M Tech	Anna University	2008	Assistant Professor	12/08/2014	50.00	50.00	0.00	1	None	None	0.00	0	None
M.Sashidhar	ME/ M Tech	NIT,Tirichy	2014	Assistant Professor	04/09/2014	0.00	100.00	0.00	0	None	None	0.00	0	None
M. Karthika	ME/ M Tech	JNTUK	2011	Assistant Professor	15/09/2014	0.00	100.00	0.00	8	None	None	0.00	0	None
D. Chandra Shekar	ME/ M Tech	IISc, Bangalore	2014	Assistant Professor	07/11/2014	40.00	60.00	0.00	0	None	None	0.00	0	None
M.Prashanth	ME/ M Tech	JNTUH	2014	Assistant Professor	15/12/2014	0.00	100.00	0.00	0	None	None	0.00	0	None
M. Lohita	ME/ M Tech	JNTUH	2009	Assistant Professor	24/04/2015	0.00	100.00	0.00	0	None	None	0.00	0	None
P.Jothsna Praveena	ME/ M Tech	NIT,Surat	2015	Assistant Professor	25/02/2016	100.00	0.00	0.00	0	None	None	0.00	0	None

**5.1 Student-Teacher Ratio (STR) (20)****Total Marks : 20.00**

Institute Marks : 20.00

Assessment =  $20 \times 15/STR$ ; subject to maximum assessment of 20STR =  $(x + y + z)/N1$ 

where, x = Number of students in 2nd year of the programme

y = Number of students in 3rd year of the programme

z = Number of students in 4th year of the programme

N1 = Total number of faculty members in the programme (by considering fractional load)

Year	X	Y	Z	N1	X+Y+Z	STR	Assessment
2013-2014	140	142	142	29	424	14.62	20.00
2014-2015	141	139	142	29	422	14.55	20.00
2015-2016	132	140	140	28	412	14.71	20.00

Average assessment 20.00

N = Maximum {N1, N2}

N1 = Total number of faculty members in the programme (considering the fractional load)

N2 = Number of faculty positions needed for student-teacher ratio of 15

Year	Sanctioned Intake	Actual Admitted	N1	N2	N=Max.(N1,N2)
2013-2014	360	424	29	28	29
2014-2015	360	422	29	28	29
2015-2016	360	412	28	27	28

**5.2 Faculty Cadre Ratio (20)****Total Marks : 20.00**

Institute Marks : 20.00

Assessment =  $20 \times CRI$ 

where, CRI = Cadre ratio index

=  $2.25 \times (2A + B)/N$ ; subject to max. CRI = 1.0

where, A = Number of professors in the programme

B = Number of associate professors in the programme programme

year	A	B	N	CR1	Assessment
2013-2014	5	6	29.00	1.00	20.00
2014-2015	6	3	29.00	1.00	20.00
2015-2016	6	5	28.00	1.00	20.00

Average assessment 20.00

**5.3 Faculty Qualifications (30)****Total Marks : 22.96**

Institute Marks : 22.96

Assessment = 3 × FQI

where, FQI = Faculty qualification index

= (10x + 6y + 2z0)/N2

where, x = Number of faculty members with PhD

y = Number of faculty members with ME/ M Tech

Z = Number of faculty members with B.E/B.Tech

	X	Y	Z	N	FQI	Assessment
2013-2014	3	32	1	29.00	7.17	21.52
2014-2015	5	33	0	29.00	7.86	23.59
2015-2016	5	32	0	28.00	7.93	23.79

Average assessment 22.96

**5.4 Faculty Competencies correlation to Programme Specific Criteria (15)****Total Marks : 15.00**

Institute Marks : 15.00

(Provide evidence that program curriculum satisfies the applicable programme criteria specified by the appropriate American professional associations such as ASME, IEEE and ACM. You may list the programme specific criteria and the competencies (specialisation, research publication, course developments etc.,) of faculty to correlate the programme specific criteria and competencies)

In GRIET, the quality and performance of the students and graduates are very important considerations. The institution evaluates student performance, advises students regarding curricular and career matters, and also monitors student's progress to foster their success in achieving program outcomes, thereby enabling them as graduates to attain program objectives. The institution has enforced policies for the validation of programme curriculum to satisfy the applicable programme criteria specified by the IEEE and IUCEE. The institution also has imposed procedures to assure that every student at GRIET meet all program requirements.

GRIET has sufficient number of faculty with competencies to optimally cover all of the curricular areas of the program. The institution accommodates adequate levels of student-faculty interaction, student advising and counseling by the faculty, University service activities, professional development, and interactions with industrial and professional practitioners, as well as employers. The faculty ensures that the program curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution.

Our faculty has appropriate qualifications and demonstrates sufficient authority to ensure the proper guidance of the program and to develop and implement processes for the evaluation, assessment, and continuing improvement of the program, and its objectives and outcomes. Our faculty has the overall competence with diversity of backgrounds, engineering experience, teaching experience, ability to communicate, enthusiasm for developing more effective programs, level of scholarship, participation in professional societies.

At GRIET, the structure of the curriculum provides both breadth and depth across the range of engineering topics implied by the title of the program. The professional component of our curriculum includes:

- One year of a combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline.
- One and half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the students field of study. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. These studies provide a bridge between mathematics and basic sciences on the one hand and engineering practice on the other. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.
- A general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

The details of the faculty competencies that correlate to the Programme Specific Criteria are given in the tables below:

**1. Program Specific Criteria of Power Electronics Courses and Faculty Competency**

The courses in this group deal with the principles of Power Electronics, Power Semiconductor Drives, Microprocessors, Micro controllers, Analog and Digital Electronics laboratory and IC applications. In this group, the students learn the characteristics of various power electronic switches and digital devices. Programming of microprocessors, interfacing with power electronic devices, interface with the drive are also explored in this module.

Students are provided with all the digital devices, measuring equipments, simulation software's to model, analyze, simulate and design the power electronic components. PCB design software provided in the laboratories to design control circuits for the power electronics systems and drives. Students are provided with lab manual and course files.

Power Electronics Specific Courses	Names of Faculty
Power Electronics	Dr .S.N Saxena
Power Semiconductor Drives	Prof.P.M. Sharma
Power Electronics and Simulation lab	Dr .J Praveen
Microprocessors and Microcontrollers	V.V.S.Madhuri
Microprocessors and Microcontrollers lab	G.Swapna
LabVIEW-Matlab	B.Vasanth Reddy
Digital Electronics	D.Anusha
Analog and Digital Electronics lab	M.N.Sandhya Rani
IC Applications	R.Anil Kumar

**Dr S.N Saxena** is a PhD in Power Electronics from University of Tokyo, Japan and has 24 years of Industrial Experience in B.H.E.L R&D in various capacities. He is contributing to a major research area in Power Electronics and has published more than 45 research papers in reputed National and International Journals and Conferences. He has a rich experience working in a major Public Sector Undertaking like B.H.E.L in its production and consultancy departments, and shouldering

such an important responsibilities. His core competency and contemporary knowledge, in and relevant to power electronics is contributing to the student learning processes to become proficient and helping them in their carrier building in power electronics sector. His experience, both in industry and teaching is helping the students in learning the concepts with practical relevance. His participation in workshops and organizing them at the institute has benefitted those faculty and students who attended the continuous education program/in imbibing the latest trends in power electronics and latest softwares in power electronics drives. His enormous efforts in propagating in power electronics, has helped the students with ability to design and control of rectifiers, inverters and be able to interface Micro controllers with the outside world. They can learn to use LabVIEW and MatLab softwares for developing new products in power electronics drives and using these softwares they can simulate and estimate cost of the product also. He has utilized his experience in both industry and academics in compiling a Laboratory Manuals and designing course modules.

**Prof.P.M.Sarma** has 25 years of Industrial Experience in Steel Authority of India Limited.(S.A.I.L) and has published five papers in national and international journals and conferences. His core competency and contemporary knowledge relevant to power electronics is contributing to become proficient and helping them in their carrier building in power electronics sector. His experience, both in industry and teaching is helping the students in learning the concepts with practical relevance. His participation in workshops and organizing them at the institute has benefitted those faculty and students who attended the continuous education program/in imbibing the latest trends in power electronics and latest softwares in power electronics drives. His enormous efforts in propagating in power electronics, has helped the students with ability to design and control of rectifiers, inverters and be able to interface Micro controllers with the outside world. They can learn to use Arduino, LabVIEW and MatLab softwares for developing new products in power electronics drives. He has utilized his experience in both industry and academics in compiling a Laboratory Manuals and designing course modules.

**Dr J Praveen** has done his Ph.D from Osmania University in power electronics, Hyderabad. His research work carried out at BHEL Research and Development Center with support of University Grants Commission (UGC) fellowship. He is contributing to a major research area in Power Electronics and has published more than 50 research papers in reputed International and National Journals and Conferences. His core competency and contemporary knowledge relevant to power electronics is contributing to become proficient and helping them in their carrier building in power electronics sector. He has utilized his experience in academics in compiling Laboratory Manuals and designing course modules.

**VVS Madhuri** joined in this institution on 30/06/2011. She had done her M.Tech in 2007 from JNTUK. She had overall experience of 9 years. She is familiar with softwares like MATLAB, LABVIEW, PLC Programming, PSAT, PSCAD, Multisim etc. She had participated in various workshops through NMEICT, IITB and IITKGP, GRIET as Remote center.

**R.Anil Kumar** is well versed with the latest technologies in Microprocessor and Micro controller and IC Applications. He developed IC Applications course modules and Microprocessor and Micro Controllers lab manuals. He is familiar with softwares like MatLab, Arduino, Proteus, TASM, LabVIEW and Eagle etc. His contribution to the students makes them understand OP Amps and Micro controllers and use them in conjunction with Arduino for designing Micro control Applications.

**M.Sandhya Rani** has developed Analog and Digital lab manuals. Her contribution to the students makes them to understand the basic Analog and digital circuit concepts which provides foundation for the design of Op Amps. She is familiar with softwares like MatLab, Arduino, Proteus, TASM, LabVIEW and Eagle etc.

**G.Swapna** has developed Power Electronics course modules and Micro processor and Micro Controllers and Power Electronics Lab manuals. She is familiar with softwares like MatLab, Arduino, Proteus, TASM, LabVIEW and Eagle etc. Her contribution to the students makes them to understand the Eagle software which provides foundation for the design of PCB's.

**B.Vasanth Reddy** developed Power Electronics course modules and LabVIEW and Mat Lab Laboratory manuals. His contribution to the students makes them to understand the LabVIEW and MatLab software's and use them in designing of power electronics projects.

Core competence of the above faculty is vital for the attainment of Course Outcomes and Program Outcomes.

## 2. Power Systems specific Courses

The courses in this group deals with principles of power systems, various renewable and conventional energy sources for power generation, transmission, distribution and utilization of electrical power. This group also deals with the protection finding faults, circuit breakers, computer methods to control power. New trends in power transmission using HVDC and High Voltage Engineering are dealt in this group of courses.

Students are provided with all the digital devices, measuring equipments, simulation software's to model, analyze, simulate and design the power systems components. PCB design software provided in the laboratories to design control circuits for the power system. Students are trained to develop multi bus models of power transmission using different types of transmission methods. Students are provided with lab manual and course files.

Power Systems Specific Courses	Name of the Faculty
Power Systems-I	Dr J Praveen
Power Systems-II	A.Vinay Kumar
Computer Methods in Power Systems	V.Vijaya Rama Raj
Electrical Distribution Systems	Dr.J. Sri Devi
Renewable Energy Sources	Syed Sarfaraz Nawaz
Utilization of Electrical Energy	V.Hima Bindu
Switch Gear and Protection	V.V.S.Madhuri
Power Systems Operation and Control	K.Sirisha
High Voltage Engineering	V.Usha Rani
HVDC Transmission	B.Vasanth Reddy

Dr J Praveen has done his Ph.D from Osmania University, Hyderabad and has more than 50 paper published in the journals and conferences.

**Mr.V.Vijaya Rama Raju** has vast experience in designing power systems equipment and presently perusing Ph.D from power systems with JNTUH, Hyderabad and has published 7 research papers in conferences. He has developed number of computer controlled Machines with Lab view and generating funds to the department in the form of Consultancy. He has contributed in NBA and TEQIP-II In the department. The faculty member developed power systems operation and control and power systems course modules. His contribution to students makes them to learn how to apply power quality issues in real time power systems.

**J.Sridevi** has done her Ph.D in JNTUH, Hyderabad in power systems. She has 13 years in teaching including four years in research. She has published three research papers in International and national conferences and presented two technical papers in International and National Conferences. Her contribution to students makes them learn how to apply distribution system methods in real time environment.

**Syed Sarraz Nawaz** is pursuing PhD from JNTU in power semiconductor drives and specialized in micro grid system. He has 5 years in teaching including two years in research. He has published three research papers in International and national conferences and presented two technical papers in International and National Conferences. His contribution to the students makes them to understand design power systems.

**V.V.S.Madhuri** developed switch gear and protection course modules and Her contribution to students makes them to learn and apply knowledge on power systems. She is familiar with softwares like MatLab, Arduino, LabVIEW, PSCAD and PLC (Siemen's , Crouzet , ABB).

**A.Vinay Kumar** is a pursuing PhD from JNTUH in Power Quality and High voltage engineering. He has industry working experience of two years and six years in teaching including two years in research. He has published three research papers in International and national conferences and presented two technical papers in International and National Conferences. His contribution to students makes them to learn how to apply power quality issues in real time power systems.

Core competence of the above faculty is vital for the attainment of Course Outcomes and Program Outcomes.

### 3. Control Systems Specific courses

The courses in this group deals with principles of control systems and advanced control systems courses and laboratories. Students explore feedback control system characteristics in time domain and frequency domain. In this group stability and controllability of systems are explored. Different types of fuzzy logic controls and neural network methods learned by the students.

Students are provided with all the digital devices, measuring equipments, simulation software's to model, analyze, simulate and design the control systems components. PCB design software provided in the laboratories to design control circuits for the control systems. Students are provided with lab manual and course files.

Control Systems Specific Courses	Name of the Faculty
Control Systems	Dr.D.V.PushpaLata Latha
Control Systems lab	Dr.D.G.Padhan
Advanced Control Systems	U.Vijaya Laxmi

**Dr DV Pushpalatha** is a PhD from Andhra University, Vishakhapatnam, and she has performed research in the Design of Controllers for Robotic Applications using Fuzzy Logic and Support Vector Machines. She has published 14 papers in International Journals and National Conferences. She has also served as a chair person for technical sessions in National Conferences. She has keen interest in the field of research spanning embedded systems, Fuzzy Logic and Support Vector Machines. She developed Control systems course modules and Control systems lab manuals, and her participation in faculty development programs, workshops, seminars and conferences has benefitted to the students who attended the continuous education program/in imbibing the latest trends in Advanced control Systems and latest updates in Neural Networks.

**Dr. Dola Gobinda Padhan** received his Ph.D. degree from Indian Institute of Technology, Guwahati and M.Tech. degree from Maulana Azad National Institute of Technology, Bhopal. He has received GATE Scholarship and MHRD scholarship during his master and doctoral studies. His research interests are focused on dead time compensation, auto-tuning, relay based identification, stabilization of processes, modeling, analysis & control of complex industrial processes, optimisation techniques, Control theory applications and smart grids. He has published more than 20 papers in well reputed International and national Journal and conferences.

**P.Sirisha** developed control systems course modules and control systems Lab Laboratory manuals. She is familiar with softwares like MATLAB, ARDUINO, Proteus, TASM, etc. She had done projects like Speed control of DC shunt motor using PID, Water Flow Gauge using Arduino for cumulative and instantaneous flows & Basic Conceptual Circuits which are useful for Basic Electrical Engineering. Her contribution to students makes them to learn and apply knowledge on Advanced Control systems.

**M.Rekha** is well versed with the latest technologies in Electrical field. She developed various course modules and lab manuals. She is familiar with softwares like MATLAB, ARDUINO, PSPICE, Proteus, TASM etc. She had done projects like Arduino based Oscilloscope, System Identification for an open loop DC Motor & Basic Conceptual Circuits which are useful for Basic Electrical Engineering. She had published a paper on An Electromagnetic Vibrational Energy Harvesting Using DC-DC Converters in 2012 at IJERT Journal. Her contribution to students makes them to learn and apply knowledge on Control systems.

Core competence of above faculty is vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes.

### 4. Networks Specific courses

The courses in this group deals with principles of basic electrical engineering, electrical networks, measurements, Instrumentation, electromagnetic fields and laboratories for associated courses. In these group student learns the characteristics various basic elements and electrical, magnetic fields. Students learn about functioning of various instruments, measurement methods. Relation between various electrical components is explored in this module. Student learns all the basic electrical engineering from these courses.

Students are provided with all the digital devices, measuring equipments, simulation software's to model, analyse simulate and design the electrical and electronic components. Hardwares and softwares provided in the laboratories to design electrical circuits, measurements and instrumentation. Students are provided with lab manual and course files.

Networks Specific Courses	Name of The Faculty
Basic Electrical Engineering	Prof PS Raju
Instrumentation	Dr.J.Sridevi
Network Theory	M.Srikanth
Electrical Measurement	U.Vijaya Laxmi
Multisim-Networks lab	G.Sandhya Rani
Electromagnetic Fields	P.Praveen Kumar
Electrical Measurements lab	P.Sirisha

**Prof P.S.Raju** has done his masters in Power systems from Andhra University. He has developed Networks, Measurements and Machines Laboratories in the department with the help of other faculty members and has published 18 papers in International Journals and National Conferences. He has taken up administrative activity as principal from the inception of college and brought this institution to the apex in the research and to best quality in education. He has taken enormous effort to develop state of art Electrical machines Laboratories on par with the Industry. He received best Principal award from the AICTE. He is instrumental to make GRIET as an accredited institution by NBA. He has developed 10K Solar based power plant in the college and planning to install 200kW solar PV plant which is in process. His core competency and contemporary knowledge relevant to power electronics is contributing to become proficient and helping them in their

carrier building in Basic Electrical and Electronics sector. His experience, both in industry and teaching is helping the students in learning the concepts with practical relevance. His participation in workshops and organizing them at the institute has benefited those faculty and students who attended the continuous education program/in imbibing the latest trends in Electrical Engineering field and latest softwares in Electrical Measurements. His enormous efforts in propagating in Basic Electrical and Electronics, has helped the students with ability to design Basic Electrical circuits, Electrical Measurements and be able to interface with Arduino Software. They can learn to use LabVIEW and MatLab softwares for developing new products in Basic Electrical and Electronics. He has utilized his vast experience in academics in compiling a Electrical Measurements Lab Laboratory Manuals and designing Electrical Measurements course modules.

**Prof. P.M. Sharma** has vast experience in power electronics in industry and has published five research papers in journal and conferences. He has utilized his vast experience in academics in compiling a Electrical Measurements Lab Laboratory Manuals and designing Electrical Measurements course modules. His contribution to students makes them to learn and apply basic theorems and basic concepts in Electrical and Electronics.

**U.Vijaya Laxmi** developed Electrical Measurements course modules and Electrical Measurement Lab Laboratory manuals. Her contribution to students makes them to calculate the unknown values of different bridges like Way's Bridges and Anderson Bridge.

**M.Ramesh** is well versed with the latest technologies in Electrical Machines. He has 5 years of industry experience in IT sector. He is familiar with softwares like MATLAB, ARDUINO, PSPICE, Proteus, TASM etc. He had done projects like Arduino based Washing Machine and Switched Reluctance Motor. His contribution to students makes them to learn and apply basic theorems and basic concepts in Electrical and Electronics.

**K.Sirisha** developed Electrical Measurements course modules and Electrical Measurement Lab Laboratory manuals. Her contribution to students makes them to calculate the unknown values of different bridges like Way's Bridges and Anderson Bridge.

**M.N.Sandhya Rani** developed Electrical Electronics course modules and Multisim/Network Theory Lab Laboratory manuals. Her contribution to students makes them to learn and apply basic theorems and basic concepts in Electrical and Electronics.

**P.Praveen Kumar** developed Basic Electrical and Electronics course modules and Multisim/Network Theory Lab Laboratory manuals. His contribution to students makes them to learn and apply basic theorems and basic concepts in Electrical and Electronics.

Core competence of above faculty is vital for attainment of Program Educational Objectives, through Program Outcomes via Course Outcomes.

### 5. Electrical Machines Specific Courses

The courses in this group deals with principles of AC and DC machines along with the electrical machine laboratories. In this group students learn about various types of DC generator, DC motor, Transformer Induction motor, Induction generators, Synchronous motor, Synchronous generator, Universal motor, BLDC motor, Hysteresis motor and Reluctance motor

Students are provided with all the digital devices, electrical machines, measuring equipments, simulation software's to model, analyze simulate and design the electrical machines components. Students are provided with lab manual and course files.

Electrical Machines Specific Courses	Name of the Faculty
Electrical Machines-I	Prof P.S Raju
Electrical Machines-II	Dr.S.V.Jayaram Kumar
Electrical Machines-III	E.Venkateshwarlu
Electrical Machines Lab-I	Syed Sarfaraz. Nawaz
Electrical Machines Lab-II	V.Vijaya Rama raju

**Prof P.S.Raju** has done his masters in Power systems from Andhra University. He has published 14 papers in International Journals and National Conferences. He has developed Electrical machines and Machines Laboratories in the department with the help of other faculty members and research publications in the Electrical engineering field. His core competency and contemporary knowledge relevant to power electronics is contributing to become proficient and helping them in their carrier building in Electrical Machines. His vast experience in teaching is helping the students in learning the concepts with practical relevance. His participation in workshops and organizing them at the institute has benefited those faculty and students who attended the continuous education program/in imbibing the latest trends in Electrical Engineering field and latest softwares in Electrical Machines. He has utilized his vast experience in academics in compiling a Electrical Machines Lab Laboratory Manuals and designing Electrical Machines course modules.

**Dr S V Jayaram kumar** joined this institution on 26/12/2014.He has 35 Years of Teaching Experience. He obtained PhD in the year 2000 from IIT Kanpur and ME in 1979 from Andhra University and B.E in 1976. He is a retired Professor from JNTU Hyderabad. He had guided 10 PhD Scholars . He had 25 National and international publications. His areas of interests are FACTS & Power Systems.

**E.Venkateshwarlu** has three decades of experience in industry in Electrical machines specialization. The other faculty members teaching this course are also pursuing PhD from reputed universities and He has published several research papers in journal and conferences. His core competency and contemporary knowledge relevant to power electronics is contributing to become proficient and helping them in their carrier building in Electrical Machines. His vast experience in industry and teaching is helping the students in learning the concepts with practical relevance. His participation in workshops and organizing them at the institute has benefited those faculty and students who attended the continuous education program/in imbibing the latest trends in Electrical Engineering field and latest softwares in Electrical Machines. He has utilized his vast experience in academics in compiling a Electrical Machines Lab Laboratory Manuals and designing Electrical Machines course modules.

### 5.5 Faculty as participants/resource persons in faculty development/training activities (15)

**Total Marks : 12.97**

Institute Marks : 12.97

(Instruction: A faculty member scores maximum five points for a participation/resource person.)

File Name			
Faculty Development activities			
Name of the faculty	max. 5 per faculty		
	2013-2014	2014-2015	2015-2016

IVI. SRIKANTH	3.00	3.00	3.00
A Vinay Kumar	3.00	5.00	5.00
B Vasanth Reddy	3.00	5.00	5.00
D. Karuna Kumar	3.00	3.00	3.00
D.Ramya	3.00	0.00	0.00
D.Swathi	3.00	0.00	0.00
Dr. J. Sridevi	5.00	5.00	5.00
Dr.D G Padhan	5.00	5.00	5.00
Dr.D.V. Pushpa Latha	5.00	5.00	5.00
Dr.J Praveen	5.00	5.00	5.00
G .Sandhya Rani	3.00	3.00	5.00
G Swapna	5.00	3.00	5.00
J.Sridevi	3.00	3.00	5.00
K. Sudha	0.00	3.00	5.00
M .Naga Sandhya Rani	3.00	3.00	5.00
M Rekha	3.00	3.00	5.00
M. Karthika	3.00	5.00	3.00
M. Lohita	0.00	0.00	5.00
M.Ramesh	3.00	0.00	0.00
P .Sirisha	3.00	3.00	5.00
P Prashanth Kumar	3.00	3.00	5.00
P Sri Vidya Devi	3.00	5.00	5.00
Prof. V.Vijaya Rama Raju	3.00	5.00	5.00
R. Anil Kumar	3.00	3.00	5.00
S Radhika	3.00	5.00	3.00
Syed Sarfaraz Nawaz	3.00	3.00	5.00
U Vijaya Lakshmi	3.00	3.00	5.00
V Hima Bindu	3.00	3.00	5.00
V. Usha Rani	3.00	3.00	5.00
Y Satya Vani	3.00	3.00	3.00
D. Chandra Shekar	0.00	5.00	3.00
M .Sashidhar	0.00	5.00	3.00
M. Prashanth	0.00	5.00	3.00
M.Karthika	0.00	5.00	5.00
P Ravikanth	0.00	5.00	4.00
P Saraswathi	0.00	5.00	3.00
V. V. S. Madhuri	4.00	5.00	3.00
Sum	98.00	133.00	151.00
N	29.00	29.00	28.00
Assessment = $3 \times \text{Sum}/N$	10.14	13.76	15.00

Average assessment

12.97

**5.6 Faculty Retention (15)****Total Marks : 14.09**

Institute Marks : 14.09

Assessment =  $3 \times \text{RPI}/N$ 

where RPI = Retention point index

= Points assigned to all faculty members

where points assigned to a faculty member = 1 point for each year of experience at the institute but not exceeding 5.

Item	2013-2014	2014-2015	2015-2016
Number of faculty members with experience of less than 1 year (x0)	0.00	0.00	1.00
Number of faculty members with 1 to 2 years experience (x1)	0.00	10.00	8.00
Number of faculty members with 2 to 3 years experience (x2)	1.00	1.00	1.00
Number of faculty members with 3 to 4 years experience (x3)	6.00	4.00	4.00
Number of faculty members with 4 to 5 years experience (x4)	10.00	9.00	8.00
Number of faculty members with more than 5 years experience (x5)	19.00	14.00	15.00
N	29.00	29.00	28.00
RPI = $x1 + 2x2 + 3x3 + 4x4 + 5x5$	155.00	130.00	129.00
Assessment	15.00	13.45	13.82

**5.7 Faculty Research Publications (FRP) (20)****Total Marks : 6.80**

Institute Marks : 6.80

(Instruction: A faculty member scores maximum five research publication points depending upon the quality of the research papers and books published in the past three years.)

Assessment of FRP =  $4 \times (\text{Sum of the research publication points scored by each faculty member})/N$

File Name			
<a href="#">2015-2016 publication</a>			
<a href="#">2014-2015 publication</a>			
<a href="#">2013-2014 publication</a>			
Name of the Faculty (contributing to FRP)	FRP points (max. 5 per faculty)		
	2013-2014	2014-2015	2015-2016
M. Srikanth	0.00	3.00	0.00
A Vinay Kumar	5.00	3.00	0.00
B Vasanth Reddy	0.00	5.00	0.00
Dr. J. Sridevi	5.00	3.00	5.00
Dr.D G Padhan	5.00	5.00	5.00
Dr.D.V. Pushpa Latha	5.00	5.00	5.00
Dr.J Praveen	5.00	5.00	5.00
G. Swapna	3.00	0.00	0.00
K. Sudha	0.00	3.00	3.00
M .Naga Sandhya Rani	3.00	0.00	3.00
M. Karthika	3.00	3.00	3.00
M. Lohita	0.00	0.00	3.00
P .Sirisha	0.00	3.00	0.00
P Prashanth Kumar	3.00	0.00	0.00
P Saraswathi	0.00	0.00	3.00
P Sri Vidya Devi	3.00	3.00	3.00
P.Praveen Kumar	0.00	0.00	3.00
Prof. V.Vijaya Rama Raju	0.00	0.00	5.00
S Radhika	0.00	0.00	3.00
Syed Sarfaraz Nawaz	0.00	5.00	5.00
V Hima Bindu	3.00	0.00	0.00
V V S Madhuri	3.00	0.00	0.00
Sum	46.00	46.00	54.00
N	29.00	29.00	28.00
Assessment of FRP = $4 \times \text{Sum}/N$	6.34	6.34	7.71

Average assessment

6.80

**5.8 Faculty Intellectual Property Rights (FIPR) (10)****Total Marks : 9.44**

Institute Marks : 9.44

Assessment of FIPR =  $2 \times (\text{Sum of the FIPR points scored by each faculty member})/N$

(Instruction: A faculty member scores maximum five FIPR points each year??. FIPR includes awarded national/international patents, design, and copyrights.)

Name of faculty member (contributing to FIPR)	FIPR points (max. 5 per faculty member)		
	2013-2014	2014-2015	2015-2016
Dr. J. Sridevi	5.00	5.00	5.00
Dr.D.V. Pushpa Latha	5.00	5.00	5.00
Dr.J. Praveen	5.00	5.00	5.00
P. S. Raju	5.00	5.00	4.00
P.Praveen Kumar	3.00	4.00	3.00
Prof. P.M .Sarma	5.00	0.00	0.00
R. Anil Kumar	4.00	3.00	4.00
Dr.S.N.Saxena	5.00	0.00	0.00
E. Venkateswarlu	4.00	5.00	4.00
G .Sandhya Rani	3.00	3.00	3.00



G Swapna	3.00	4.00	3.00
K. Sudha	0.00	4.00	3.00
K.Sireesha	4.00	0.00	0.00
K.Sreshtha	4.00	0.00	0.00
M .Naga Sandhya Rani	3.00	4.00	3.00
M .Sashidhar	0.00	3.00	4.00
M Rekha	3.00	4.00	4.00
M. Karthika	0.00	3.00	4.00
M. Lohita	0.00	3.00	4.00
M. Prashanth	0.00	4.00	4.00
M. Srikanth	3.00	4.00	4.00
M.Chakravarthy	5.00	0.00	0.00
M.Ramesh	3.00	0.00	0.00
M.Shekar	0.00	4.00	0.00
P .Sirisha	4.00	4.00	3.00
P Prashanth Kumar	4.00	4.00	3.00
P Ravikanth	0.00	4.00	4.00
P Saraswathi	3.00	3.00	4.00
B Vasanth Reddy	4.00	5.00	4.00
D. Chandra Shekar	0.00	4.00	4.00
D. Karuna Kumar	3.00	4.00	3.00
D.Anusha	3.00	0.00	0.00
D.Ramya	3.00	0.00	0.00
D.Rohan	0.00	3.00	3.00
D.Swathi	3.00	0.00	0.00
Dr S. V. Jayaram Kumar	0.00	5.00	5.00
P. Sri Vidya Devi	3.00	4.00	4.00
P.Jothsna Praveena	0.00	0.00	4.00
S Radhika	3.00	4.00	3.00
V Usha Rani	4.00	3.00	3.00
V V S Madhuri	3.00	4.00	4.00
V. Hima Bindu	4.00	4.00	3.00
V.Vijaya Rama Raju	5.00	4.00	3.00
Y Satya Vani	3.00	4.00	3.00
Syed Sarfaraz Nawaz	3.00	4.00	4.00
U. Vijaya Lakshmi	4.00	3.00	3.00
Sum	131.00	142.00	133.00
N	29.00	29.00	28.00
Assessment of FIPR = 2 × Sum/N	9.03	9.79	9.50

Average assessment 9.44

**5.9 Funded R&D Projects and Consultancy (FRDC) Work (20)****Total Marks : 2.82**

Institute Marks : 2.82

(Instruction: A faculty member scores maximum 5 points, depending upon the amount.) A suggested scheme is given below for a minimum amount of Rs. 1 lakh.)

Assessment of R&D and consultancy projects =  $4 \times (\text{Sum of FRDC by each faculty member})/N$ 

Five points for funding by national agency,

Four points for funding by state agency,

Four points for funding by private sector, and

Two points for funding by the sponsoring trust/society.

Name of faculty member (contributing to FRDC)	FRDC points (max. 5 per faculty member)		
	2013-2014	2014-2015	2015-2016
E. Venkateswarlu	0.00	0.00	0.00
M. Srikanth	0.00	0.00	0.00
A. Vinay Kumar	0.00	0.00	0.00
B.Vasanth Reddy	0.00	0.00	0.00
D. Chandra Shekar	0.00	0.00	0.00
D. Karuna Kumar	0.00	0.00	0.00
D.Anusha	0.00	0.00	0.00

D.Ramya	0.00	0.00	0.00
D.Rohan	0.00	0.00	0.00
D.Swathi	0.00	0.00	0.00
Dr S. V. Jayaram Kumar	0.00	0.00	5.00
Dr. J. Sridevi	0.00	5.00	5.00
Dr.D.G.Padhan	0.00	0.00	5.00
Dr.D.V. Pushpa Latha	0.00	5.00	5.00
Dr.J Praveen	0.00	5.00	5.00
E. Venkateswarlu	0.00	0.00	0.00
G Sandhya Rani	0.00	0.00	0.00
G Swapna	0.00	0.00	0.00
G. Swapna	0.00	0.00	0.00
K. Sudha	0.00	0.00	0.00
K.Sireesha	0.00	0.00	0.00
K.Sreshtha	0.00	0.00	0.00
M .Sashidhar	0.00	0.00	0.00
M Naga Sandhya Rani	0.00	0.00	0.00
M Rekha	0.00	0.00	0.00
M. Lohita	0.00	0.00	0.00
M. Prashanth	0.00	0.00	0.00
M. Srikanth	0.00	0.00	0.00
M.Chakravarthy	0.00	0.00	0.00
M.Karthika	0.00	0.00	0.00
M.Ramesh	0.00	0.00	0.00
M.Sashidhar	0.00	0.00	0.00
M.Shekar	0.00	0.00	0.00
P Ravikanth	0.00	0.00	0.00
P Saraswathi	0.00	0.00	0.00
P Sri Vidya Devi	0.00	0.00	0.00
P. Prashanth Kumar	0.00	0.00	0.00
P. Ravikanth	0.00	0.00	0.00
P. S. Raju	0.00	0.00	0.00
P. Sirisha	0.00	0.00	0.00
P.Jothisna Praveena	0.00	0.00	0.00
P.Praveen Kumar	0.00	0.00	0.00
R. Anil Kumar	0.00	0.00	0.00
S Radhika	0.00	0.00	0.00
Syed Sarfaraz Nawaz	0.00	0.00	0.00
U Vijaya Lakshmi	0.00	0.00	0.00
V. Hima Bindu	0.00	0.00	0.00
V. V. S. Madhuri	0.00	5.00	5.00
V.Usha Rani	0.00	0.00	0.00
Y Satya Vani	0.00	0.00	0.00
Prof. V.Vijaya Rama Raju	0.00	5.00	5.00
Sum	0.00	25.00	35.00
N	29.00	29.00	28.00
Assessment of FRDC = $4 \times \text{Sum}/N$	0.00	3.45	5.00

Average assessment

2.82

**5.10 Faculty Interaction with Outside World (10)****Total Marks : 9.82**

Institute Marks : 9.82

(Instruction: A faculty member gets maximum five interaction points, depending upon the type of institution or R&amp;D laboratory or industry, as follows)

FIP = Faculty interaction points

Assessment =  $2 \times (\text{Sum of FIP by each faculty member})/N$ 

Five points for interaction with a reputed institution abroad, institution of eminence in India, or national research laboratories,

Three points for interaction with institution/industry (not covered earlier).

Name of faculty member (contributing to FIP)	FIP	

	2013-2014	2014-2015	2015-2016
E. Venkateswarlu	5.00	5.00	5.00
A Vinay Kumar	4.00	5.00	5.00
B Vasanth Reddy	5.00	5.00	5.00
D. Chandra Shekar	0.00	4.00	5.00
D.Rohan	0.00	4.00	0.00
Dr. J. Sridevi	5.00	5.00	5.00
Dr.D G Padhan	0.00	5.00	5.00
Dr.D.V. Pushpa Latha	5.00	5.00	5.00
Dr.J Praveen	5.00	5.00	5.00
K. Sudha	0.00	4.00	4.00
M Naga Sandhya Rani	4.00	3.00	3.00
M Rekha	4.00	4.00	3.00
M. Karthika	0.00	5.00	3.00
M. Lohita	0.00	3.00	5.00
M. Srikanth	5.00	4.00	4.00
P .Sirisha	4.00	3.00	3.00
P Sri Vidya Devi	5.00	3.00	4.00
P. Saraswathi	3.00	4.00	3.00
P.Jothisna Praveena	0.00	0.00	4.00
Prof. V.Vijaya Rama Raju	5.00	5.00	5.00
Syed Sarfaraz Nawaz	4.00	3.00	5.00
D. Karuna Kumar	4.00	3.00	4.00
D.Anusha	4.00	0.00	0.00
D.Ramya	3.00	0.00	0.00
Dr S. V. Jayaram Kumar	0.00	5.00	5.00
G .Sandhya Rani	4.00	3.00	4.00
G Swapna	4.00	5.00	4.00
K.Sireesha	3.00	0.00	0.00
K.Sreshtha	3.00	0.00	0.00
M .Sashidhar	0.00	4.00	4.00
M. Prashanth	0.00	4.00	5.00
M.Chakravarthy	5.00	0.00	0.00
M.Ramesh	3.00	0.00	0.00
P Prashanth Kumar	4.00	3.00	4.00
P Ravikanth	0.00	4.00	5.00
P. S. Raju	5.00	5.00	5.00
P.Praveen Kumar	3.00	4.00	4.00
Prof. P.M .Sarma	5.00	0.00	0.00
R. Anil Kumar	4.00	5.00	4.00
S Radhika	3.00	4.00	3.00
U Vijaya Lakshmi	3.00	4.00	3.00
V Hima Bindu	4.00	5.00	4.00
V Usha Rani	3.00	4.00	3.00
V V S Madhuri	4.00	4.00	5.00
Y Satya Vani	3.00	4.00	3.00
Sum	137.00	154.00	155.00
N	29.00	29.00	28.00
Assessment of FIP = 2 × Sum/N	9.45	10.00	10.00

Average assessment

9.82

**6 Facilities and Technical Support (75)****Total Marks : 75.00****Description of classrooms, faculty rooms, seminar, and conference halls:**

Description of classrooms, faculty rooms, seminar, and conference halls:

Room description	No. of Rooms	Usage	Shared/Exclusive	Capacity	Rooms Equipped with PC, Internet, etc.
Class		For conducting class work for UG and		72 each	Class rooms are equipped with state-of-art infrastructure, Wi-Fi Facility and are

ROOMS	No	PG programs	Exclusive	Room	well designed to give ideal teaching and learning environment.
HOD Room	1	For Head of the Department	Exclusive	5 each	Equipped with desktop computer, Laptop with Wi-Fi connection, Scanner, Printer, LCD TV
Faculty Rooms	2	For Department faculty	Exclusive	16 each	Equipped with Necessary infrastructure, Wi-Fi Facility
Seminar Halls	1	For conducting workshops, Guest lectures and departmental meetings	Exclusive	60	Equipped with corporate infrastructure and facilities
Conference Hall	1	For conducting conferences and technical events	Exclusive	200	Fully air-conditioned hall equipped with LCD projectors and public addressing system
Tutorial Rooms	2	For conducting tutorial and remedy classes	Exclusive	36 each rooms	Tutorial rooms are equipped with state-of-art infrastructure, Wi-Fi Facility and are well designed to give ideal teaching and learning environment.
Laboratories	8	For conducting practical sessions	Exclusive	36	Equipped with Necessary hardware and Licensed Software with LAN and Wi-Fi Facility

### 6.1 Classrooms in the Department (20)

**Total Marks : 20.00**

6.1.1 Adequate number of rooms for lectures (core/electives), seminars, tutorials, etc., for the program (10)

Institute Marks : 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

**No. of Class rooms : 8**

**No. of Seminar Halls : 1**

**No. of Tutorial rooms : 2**

Detailed information about the rooms in the department is given below.

Room No	Usage	Exclusive/ Shared	Room Equipped with
2103	Class Room	Exclusive	Class rooms are equipped with good infrastructure and are well designed to give ideal teaching and learning environment.
2108			
2111			
2112			
2304			
2305			
2308			
2309	Tutorial rooms	Exclusive	Separate Tutorial rooms with a seating capacity 36 of students are available for special and remedial classes
2113			
2114	Seminar Halls	Exclusive	Equipped with corporate style infrastructure and facilities for conducting workshops, Guest lectures and departmental meetings
2102			

6.1.2 Teaching aids---multimedia projectors, etc (5)

Institute Marks : 5.00

(Instruction: List the various teaching aids available)

#### Teaching Aids:

**From the inception, the teaching staff at GRIET uses the modern Teaching aids for effective way of teaching.** The process of teaching-learning depends on different types of teaching aids and tools available in the classroom. Teaching aids used at GRIET facilitate the student learning without having to rely only on textbooks and form an integral component of a classroom and are very important in the TLP (Teaching Learning Process). These teaching aids play an important role in assisting students to improve reading comprehension skills, illustrating or reinforcing a skill or concept, differentiating instruction and relieving anxiety or boredom by presenting information in a new and interesting way.

The teaching – learning resources address multiple learning styles, themes, grades and academic skill levels. Teachers at GRIET find these aids, as supplements to curriculum materials. Such resources can make teaching and learning, a rewarding experience. We use the latest teaching aids available in the form of audio, video and audio-visual aids. They are very important in implementation of learning objectives which affects the outcomes.

#### We at GRIET enjoy the following advantages by implementing Teaching Aids:

1. Students tend to forget if they only listen in their classroom. Appropriate teaching aid if properly used helps them to retain the concepts better and for a longer period.
2. Providing conceptual thinking and imagining capabilities.
3. Helping the student to get clarity on the subject more clearly.
4. Enhancing the learning experience for the students by motivating those using different teaching aids.
5. Making the classrooms more interesting, live and interactive.
6. Helping the students to increase and improve their vocabulary and communication skills.
7. Creating a proper image of the subject when the students hear, visualize and imagine.
8. Creating an interesting environment for the students.
9. Provide hands-on experience to the students with the help of teaching aids such as models.

#### Different Teaching aids used in GRIET:

##### 1. Visual Aids:

**i. White Board.**

- The written matter on the board is meant to attract the attention and it stays visually for a long time to the student
- It acts as a prompt and a reminder of the on-going lecture. Thus acts as a reinforcing tool in TLC.
- It is used simultaneously along with other aids which may last a short period visually.
- It helps in step-wise/sequentially depict a process or derive formulae.
- It makes the student put his or her understanding on the board, upon an invitation of the teacher in front of the audience.
- The summary of the lecture is captured on the board, reinforcing the teaching objective.

**ii. The Bulletin-Board.**

- It has a wider reach, serving as a mass communication tool.
- The display summarizes the class room activity.
- The activity of a group or the present status is made available.
- It acts as a display for result of an individual or group activity.
- It acts as a motivator when displaying awards and prizes or appreciations.
- Visual information other than written/ typed matter, photos and posters are also displayed.

**iii. Overhead Projector/ LCD Projector.**

- They evoke more involvement by the audience as the visuals are strong in composition and content.
- The teacher has the flexibility of using still photos, typed matter and video.
- Numerical data is projected as tables, graphs, charts, flow-charts, info graphics, which provoke self analysis of the projection as against the information being talked.
- Projected data or figures are put for discussion and for analysis by the group.
- Still projections are used for quiz, tests and guide students effectively.

**iv. Representations -charts, sketches, flash cards, posters, pictures, pamphlets, hand-outs etc.**

- A good way to present and practice and also recycle vocabulary for all the activities in a class room.
- We use bright and colorful Flash cards to make visual impact on the viewer that leaves a longer imprint of the content on the minds.
- Increases the creative time of students and also adds context to subject learning.
- They are visually stimulating and very versatile in fitting most of the activities at all levels.

**2. Audio-Visual aids:****i. Motion pictures / Video Lectures**

- Video lectures are virtual classes by subject experts which not only provide content; they also stimulate the interest that makes the curriculum relevant, meeting the course objectives.
- Students can watch these video lectures or they can revisit the stream at any point replaying the part that they did not understand.
- Students can view and study these instructors's lecture as often as they wish until they understand the material.
- These video lectures helps in improving student's grades and increases their overall level of satisfaction and confidence.
- Even the most complex and challenging subjects can be delivered to the students in a more interesting way.

**3. Activity aids:****i. Industrial Tours, Excursion, field trips.**

- Industrial visits are considered as one of the most strategic methods of teaching and learning process.
- These tours provide students with an opportunity to learn in real time, practically through interaction, working methods and employment practices.
- They represent an important activity that contributes to the achievement of various essential learning outcomes and program objectives for the pre-final year and final year students.

#### ii. Preparation of models, charts, role play, Demonstration, Interactive games, Quizzes, Questionnaires

- This is an instant way of assessment of the students and reflects the teaching and learning process.
- The teacher prepares the questionnaire based on the subject, divides the class into groups and conducts the questionnaire or interactive games.
- They evoke memory recall of the subject or the topic(s) that are covered in the classroom by the students very effectively.
- It is used as a tool to elicit competitive spirit to gain good grades and winning attitude.
- Overall, this helps the students to prepare for online tests and quizzes which are assessments.

#### 4. Internet:

- Internet provides access to an amazing number of constantly updated and expanding resources and an incredible wealth of information.
- The Teaching-Learning Process at the institute includes self-research by students on topics given as assignments and seminars. Students use it as discussion boards, to discuss what they find with classmates or, if they're using e-mail, with students in another class or an expert in the field they are studying, and finally they can publish their work on the Web.
- Students are empowered as learners, they are motivated to use e-tools to enhance and develop team building skills, and learning through sharing.
- The framework for learning is more adaptable to a fast-changing world, resources for learning are replaced by online link to the real world, resources can be adapted to immediate learning needs and skills are developed for the information age.
- The institute records all activity under Mini- and Major Projects as video presentations for motivating and educating the fresh batch students providing a platform for novelty, innovative thinking and interaction with alumni.
- Internet skills are important for employment, improve quality of life, etc.; our students need to master them no matter whatever their field or profession.

6.1.3 Acoustics, classroom size, conditions of chairs/benches, air circulation, lighting, exits, ambience, and such other amenities/facilities (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table and the inspection thereof.)

- All the classrooms are well furnished, ventilated, and spacious and equipped with modern teaching aids.
- Separate rooms are available for tutorial classes with necessary infrastructure.
- Large size classrooms, seminar halls and laboratories have two exits for emergencies.
- All classrooms are acoustically designed to minimize echo and sound distortion.
- On the whole at GRIET, the class / tutorial rooms, seminar halls are designed in a way that they provide a conducive environment which is needed for technology enhance learning with all the modern teaching aids and amenities.

Room No	Room Size in sq.mt / strength	Acoustics	Conditions of chairs/benches	Air circulation / lighting / Exit / Ambience	Amenities / Facilities
2103	84sq.mt / 72	Good	Excellent	Excellent	State-of-art infrastructure, necessary gadgets
2108	84sq.mt / 72				
2111	84sq.mt / 72				
2112	84sq.mt / 72				
2304	84sq.mt / 72				
2305	84sq.mt / 72				
2308	84sq.mt / 72				
2309	84sq.mt / 72				

## 6.2 Faculty Rooms in the Department (15)

Total Marks : 15.00

6.2.1 Availability of individual faculty rooms (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

- Two halls of size 84 sq.mt each are utilized to have room for the teaching faculty.
- Each hall is portioned into 8 cubicles for accommodating 1 – 3 faculty members comfortably.
- Each cubicle is well equipped with necessary infrastructure, good ventilation and Wi-Fi facility round the clock.
- The cabins are spacious enough to have interactions with students personally.

Room No	No. of Cabins / Room	Room size in sq.mt
2109	8	84 sq.mt
2110	8	84 sq.mt

6.2.2 Room equipped with white/black board, computer, Internet, and such other amenities/facilities (5)  
(Instruction: Assessment based on the information provided in the preceding table)

Institute Marks : 5.00

- Some of the faculty rooms have a white board aiding for discussions.
- Each faculty room has easy access to a common desktop computer, scanner and printer, apart from the use of portable laptop computers available with the programme. They can use their personal gadgets for which power sockets are provided in the faculty rooms.
- The cubicles also have lockable storage racks for keeping the academic material apart from the individual desk storage space with lockable drawers.
- The faculty is connected both by LAN and Wi-Fi communication network for Internet access.
- They also have constant supply of RO water through dispensers, and a kitchenette for the recreation of the faculty.

Room No	White/ Black Board	Computer/ Internet Facilities	Cupboards	Amenities/facilities
2109	Yes	Wi-Fi and Laptops	Adequate in number	common desktop computer, scanner, printer, external DVD writer, Water purifier, refrigerator and kitchenette
2110	Yes			

6.2.3 Usage of room for counselling/discussion with students (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table and the inspection thereof.)

- Adequate space is available in the faculty rooms for discussions/clarifications/ counseling with the students.
- Each faculty can have discussion with his / her project team or research group in their respective cabins.
- Faculty mentors are assigned to students in the program. Mentors meet one – on – one with students in their respective cubicles to counsel on course planning, inspire students to gain confidence and self- motivation.

Room No	Space For Discussions with Students	Department library facility for faculty
2109A	Yes	Yes
2110A		

The following table is required for the subsequent criteria.

Laboratory description in the curriculum	Exclusive use / shared	Space, number of students	Number of experiments	Quality of instruments	Laboratory manuals
2101(Power Electronics Lab)	Exclusive	84 sq.mt,36	15	Excellent	Available
2104(Measurements Lab)	Exclusive	84 sq.mt,36	13	Excellent	Available
2105(Control Systems Lab)	Exclusive	84 sq.mt,36	13	Excellent	Available
2106(Electrical Machines (D.C.)Lab )	Exclusive	84 sq.mt,36	12	Excellent	Available
2107(Electrical Machines Lab(AC) Lab)	Exclusive	84 sq.mt,36	14	Excellent	Available
2310(Micro Processor and Micro Controller Lab)	Exclusive	95 sq.mt,36	12	Excellent	Available
2404(Multisim/Networks Lab)	Exclusive	156 sq.mt,36	15	Excellent	Available
2405(LabVIEW and MatLab)	Exclusive	100 sq.mt,36	15	Excellent	Available

### 6.3 Laboratories in the Department to meet the Curriculum Requirements and the POs (25)

Total Marks : 25.00

6.3.1 Adequate, well-equipped laboratories to meet the curriculum requirements and the POs (10)

Institute Marks : 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The department has excellent laboratory infrastructural facilities and all the year students are trained in their respective laboratories to enhance their practical skills and also to meet their curriculum requirements.
- Laboratories are equipped with sufficient hardware & licensed software to run program specific curriculum and off program curriculum.
- These laboratories are under the guidance of well experienced faculty, lab assistants and lab technicians.
- Lab manuals are available for all the lab courses which consist of solutions for curriculum experiments and additional experiments.
- Product laboratory is available for faculty and students to carry their innovative products and projects.
- Exclusively a project lab has been provided for the students to carry out their mini and major project work.

Lab Description in the Curriculum	P-Outcomes											
	a	b	c	d	e	f	g	h	i	j	k	l
Power Electronics Lab	X		X		X			X		X	X	X
Measurements Lab.	X	X		X		X		X	X		X	X
Control Systems Lab	X		X		X		X	X			X	X
Electrical Machines (D.C.)Lab	X	X		X			X	X		X	X	X

Electrical Machines Lab(AC) Lab	X		X			X		X	X		X	X	
Micro Processor and Micro Controller Lab	X	X		X	X			X	X		X	X	
Multisim/Networks Lab	X		X					X	X			X	X
LabVIEW and MatLab	X	X		X		X		X		X	X	X	

## 6.3.2 Availability of computing facilities in the department (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

Laboratory	Room Number	No of Computers/ Laptops	Condition of Equipment	Hardware / Software	PEOs
Power Electronics Lab	2101	20	Excellent	PSIM, Matlab, Multisim, Pspice, Eagle	2,4
Electrical Measurements Lab.	2104	15	Excellent	LabVIEW	2,4
Control Systems Lab	2105	15	Excellent	Matlab	2,4
Electrical Machines (D.C.)Lab	2106	3	Excellent	PS-Millennium, Codesys	1,2,4
Electrical Machines Lab(AC) Lab	2107	3	Excellent	PS-Millennium, Codesys, SIEMENS	1,2,4
Micro Processor and Micro Controller Lab	2310	30	Excellent	TASM, Proteus, Keil	1,2,4
Multisim/Networks Lab	2404	30	Excellent	Multisim	1,2,4
LabVIEW and Mat Lab	2405	10	Excellent	Multisim	1,2,4

## 6.3.3 Availability of laboratories with technical support within and beyond working hours (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The college timings are staggered for all the four year students in order to avoid any discrepancy in the laboratory schedules.
- All the laboratories are open from 8:00AM in the morning till 6:00PM in the evening and the technical staff is made available for the time the laboratory is open to assist the students in their respective sessions irrespective of their lab schedules.
- All the laboratories have sufficient equipment in running condition for the students to perform their experiments.
- The ratio of student to equipment available is maintained to be 2:1 to have a clear understanding of all the experiments performed in the lab sessions.
- Technical staff is trained to handle all the laboratory activities and every laboratory has an in-charge who takes care of all the laboratory equipment.
- To ensure the smooth functioning of the laboratory a couple of staff members accompany the technical staff along with lab assistants and lab technicians.

Year	College Timings	Laboratories & Student projects Lab timings	Availability of tech support in lab timings	
II	8.00 A.M to 2.00 P.M	8.00 A.M to 6.00 P.M	YES	
III	9.00 A.M to 3.00 P.M	8.00 A.M to 6.00 P.M	YES	
IV	11.00 A.M to 5.00 P.M	8.00 A.M to 6.00 P.M	YES	
Name of the Laboratory	Working Hours	Work carried out in beyond working hours	Lab In-charge	Lab Faculty
Power Electronics Lab	9.00 A.M to 3.00 P.M	Design of power electronics equipment Using Eagle Software	B. Naga siva	G.Swapna
Electrical Measurements Lab.	11.00 A.M to 5.00 P.M	Calibration of electrical meters	D.Satyanarayana Raju	U.Vijaya Laxmi
Control Systems Lab	8.00 A.M to 2.00 P.M	Simulation of control system model using Matlab	B. Nageshwar Rao	V.V.S.Madhuri
Electrical Machines (D.C.)Lab	8.00 A.M to 2.00 P.M	Simulation of Electrical DC Machines using Matlab	D. Sreedhar Varma	V.V.Ramaraju
Electrical Machines Lab(AC) Lab	9.00 A.M to 3.00 P.M	Simulation of Electrical Machines AC using Matlab	D.Sreedhar Varma	M.Srikanth
Micro Processor and Micro Controller Lab	11.00 A.M to 5.00 P.M	Interfacing micro controllers with external devices.	B.R.Prasad	R.Anil Kumar
Multisim/Networks Lab	8.00 A.M to 2.00 P.M	Simulation of Networks model using Matlab	Bh. Rama Raju	Sita.Radhika
		Simulation of		



LabVIEW and MatLab	8.00 A.M to 2.00 P.M	Electrical networks, control systems and system model using Matlab	K. Phani Varma	A. Vinay Kumar
--------------------	----------------------	--	----------------	----------------

6.3.4 Equipment to run experiments and their maintenance, number of students per experimental setup, size of the laboratories, overall ambience, etc (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The laboratories are equipped with high-end configuration systems needed for execution of experiments.
- Laboratories are well maintained by the technical and non-technical staff.
- Sufficient number of systems is available for the students to carry out the experiments.

Laboratory	Equipment	Maintenance	No of Students per Experiment	Size of the Laboratory	Overall ambience
Power Electronics Lab	Kits, Bread boards, CROs, Computers	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84sq.mt	Students should get Knowledge in Circuit Design and converters
Measurements Lab.	Computers, CROs with LABVIEW software	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84sq.mt	Students should get Knowledge in measuring instruments
Control Systems Lab	Kits, Computers and MATLAB software	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	84sq.mt	Students should get Knowledge in P, PI, PID controllers
Electrical Machines (D.C.)Lab	Machines, CROs, connecting wires, Computers.	Maintained by Skilled lab technician & Skilled computer Hardware Professional	1	84sq.mt	Students should get Knowledge in dc machines
Electrical Machines Lab(AC) Lab	Machines, CROs, connecting wires, Computers.	Maintained by Skilled lab technician & Skilled Hardware Professional	2	84sq.mt	Students should get Knowledge in ac machines
Micro Processor and Micro Controller Lab	Kits, CROs, connecting wires, Computers, Tasm software	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	95sq.mt	Students will get Knowledge in microprocessor applications
Multisim/Networks Lab	Kits, Computers, CROs, bread boards, function generators, connecting wires, Multi Sim software,	Maintained by Skilled lab technician & Skilled computer Hardware Professional	2	156sq.mt	Students will get Knowledge in basic circuit analysis.
LabVIEW and MatLab	CROs, Computers with Lab VIEW and MatLab software	Maintained by Skilled lab technician & Skilled Hardware Professional	2	100sq.mt	

6.4 Technical Manpower Support in the Department (15)

Total Marks : 15.00

Name of the technical staff	Designation	pay-scale	Exclusive / shared work	Date of joining	Qualification		Other technical skills gained	Responsibility
					At Joining	Now		
D. Sreedhar Varma	Technician	12965	Exclusive	01/11/1997	ITI in Electrical	D.E.E	Testing of DC motors & generators, AC machines using megger. Checkup connections repairing and trouble shooting	Maintaining of lab experiments and helping students in lab
Bh. Rama Raju	Technician	7500	Exclusive	08/10/2005	ITI in Electrical	ITI in Electrical	soldering repairing of PCB's populating PCB and checking and designing of PCB's	Maintaining of lab experiments and helping students in lab
K. Nageshwara Rao	Technician	5500	Exclusive	02/03/2007	ITI in Electrical	ITI in Electrical	soldering repairing of PCB's populating PCB and checking and designing of PCB's	Maintaining of lab experiments and helping students in lab
D. Phani Varma	Technician	5750	Exclusive	11/12/2007	ITI in Electrical	ITI in Electrical	soldering repairing of PCB's populating PCB and checking and designing of PCB's	Maintaining of lab experiments and helping students in lab
B.Nagasiva	Technician	4500	Exclusive	27/01/2010	ITI in Electrical	ITI in Electrical	soldering repairing of PCB's populating PCB and checking and designing of PCB's	Maintaining of lab experiments and helping students in lab
D.V. Satyanaryana Raju	Technician	4500	Exclusive	29/08/2011	ITI in Fitter	ITI in Fitter	soldering repairing of PCB's populating PCB and checking and designing of PCB's	Maintaining of lab experiments and helping students in lab
M.A. Leelavathi	D.E.O	6000	Exclusive	05/07/2007	B.Ed	B.Ed	Trained on Software loading and maintenance	Maintaining of lab experiments and helping students in lab
B.R.Prasad	Technician	4500	Exclusive	05/10/2010	D.E.E	D.E.E	soldering repairing of PCB's populating PCB and checking and designing of PCB's	Maintaining of lab experiments and helping students in lab

6.4.1 Availability of adequate and qualified technical supporting staff for programme-specific laboratories (10)

Institute Marks : 10.00

(Instruction: Assessment based on the information provided in the preceding table.)

- The technical proficiency of the technical staff is such that they are highly versatile in adapting as per programme needs and running the experiment and cater to requirements of all the three year-wise batches and their experiments.
- Each laboratory is maintained by one Technical Staff and they are available exclusively for that laboratory based on the semester requirements.
- Their duties are:
  - Issuing the components and equipment, Monitoring and take the responsibilities along with concerned lab in charge faculty.
  - Maintenance of the equipment, collecting the complaints from students / staff on equipment and resolve their complaints.
  - Maintain the stock register as per the guidelines from the higher authorities.
  - Taking safety precautionary measures while handling the equipment.
- The technical staff regularly enhances their skills through participating in workshops.

S.No	Laboratory	Qualified technical Staff	Designation
1	Multisim/Networks Lab	D.Satyanarayana Raju	Lab Assistant
2	Electrical Machines (DC)Lab	D.Sreedhar Varma	Lab Assistant
3	LabVIEW and MatLab	B.R.Prasad	Lab Assistant
4	Electrical Machines(AC) Lab	D. Sreedhar Varma	Lab Assistant
5	Control Systems Lab	B. Nageshwar Rao	Lab Assistant
6	Power Electronics Lab	B. Naga siva	Lab Assistant
7	Electrical Measurements Lab	K. Phani Varma	Lab Assistant
8	MPMC Lab	Bh. Rama Raju	Lab Assistant

6.4.2 Incentives, skill-upgrade, and professional advancement (5)

Institute Marks : 5.00

(Instruction: Assessment based on the information provided in the preceding table.)

**INCENTIVES:-**

- College provides incentives to non teaching and technical staff members
- The staff on official work are compensated for the conveyance expenses
- Staff deputed for any outstation programs is reimbursed the amount by the administration.
- Group Insurance Schemes are implemented.
- Interest free loans are disbursed for emergency needs on a case-to-case basis.
- Subsidized lunch & snacks facility are provided.
- Free lunch coupons are provided under a general scheme to help staff in times of need.
- Transportation is free
- Free medical facility is provided in the campus, apart from medical leaves and medical allowances.
- Educational loan for higher studies is available in eligible cases.
- Employee State Insurance (ESI), Employee Provident Fund (EPF) subscription available as per norms.
- College arranges get-together every year for non teaching and technical staff along with their family members.

**SKILL UPGRADE**

- Staff training programmes are organized and conducted regularly to upgrade the technical skills of both technical and non teaching staff members
- Staff is trained on new equipments or tool by the Vendor during induction and installation in the department.
- Training is provided on operation of PCs, Printer, and Scanner, Internet modems, configuring IP address, power connection, software installations, PC format activity and antivirus installation.
- Training is provided on MS Office, Excel to non teaching and technical staff members as part of computer literacy programme

- Regular training is provided to improve soft skills and communication skills.
- Training is provided on the aspects of safety, security and best laboratory practices.
- Training is provided on energy conservation for optimum use of all other resources.
- Induction and orientation programmes are conducted for all new recruits
- Intensive training provided on all laboratory experiments to meet changing syllabus requirements.

**PROFESSIONAL DEVELOPMENT:**

- Eligible non teaching and technical staff members are given chance to study B.Tech and M.Tech course with subsidized tuition fee
- Eligible staff is promoted to the next cadre upon accumulation of seniority and experience in service e.g., eligible Lab assistant are promoted as Lab supervisors.
- Administrative staff is promoted as senior assistants; senior assistants are promoted to the next level in administration.
- Lab staff upon successful completion of B.Tech and M.Tech programmes is considered for promotion as teaching faculty after suitable orientation training like FDP.
- Technical staff are given free time to upgrade their knowledge and technical skill.

**7 Academic Support Units and Teaching-Learning Process (75)****Total Marks : 70.91****Students' Admission**

Admission intake (for information only)

(Instruction: The intake of the students during the last three years against the sanctioned capacity may be reported here.)

Item	2015-2016	2014-2015	2013-2014	2012-2013
Sanctioned intake strength in the institute (N)	1080	1110	1110	930
Number of students admitted on merit basis (N1)	756	699	745	610
Number of students admitted on management quota/otherwise (N2)	324	306	308	259
Total number of admitted students in the institute (N1 + N2)	1080	1005	1053	869

Admission quality (for information only)

(Instruction: The admission quality of the students in terms of their ranks in the entrance examination may be presented here.)

Tabular data for estimating student-teacher ratio and faculty qualification for first year common courses)

Rank Range	2015-2016	2014-2015	2013-2014	2012-2013
1-10000	70	50	114	146
10000-50000	460	449	452	347
50000-100000	143	148	131	77
100000-150000	36	28	31	28
150000-200000	40	12	9	12
200000 and above	11	0	4	1
admitted with state government based norms	320	318	312	259

List of faculty members teaching first year courses:

(Instruction: The institution may list here the faculty members engaged in first year teaching along with other relevant data.)

Name of faculty member	Qualification	Designation	Date of joining the institution	Department with which associated	Distribution of teaching load(%)		
					1st year	UG	PG
V. Hima Bindu	M.Tech	Asst. Professor	28/06/2011	EEE	100	0	0
G. Sandhya	M.Tech	Asst. Professor	11/07/2007	EEE	100	0	0
V V S Madhuri	M.Tech	Asst. Professor	30/06/2011	EEE	50	50	0
K. Sudha	M.E	Asst. Professor	12/08/2014	EEE	50	50	0
M. Lohita	M.Tech	Asst. Professor	23/04/2015	EEE	100	0	0
D. Chandra Shekar	M.E	Asst. Professor	07/11/2007	EEE	100	0	0
Dr. S. Rama Murthy	Ph.D	Professor	14/07/2000	Basic Sciences	100	0	0
Dr. B R K Reddy	Ph.D	Professor	06/01/1998	Basic Sciences	100	0	0
Dr. D. Indira	Ph.D	Professor	17/01/2004	Basic Sciences	100	0	0
Dr. P.B. Appa Rao	Ph.D	Professor	25/04/2009	Basic Sciences	100	0	0
Dr. B.Srinivasa Rao	Ph.D	Professor	29/05/2013	Basic Sciences	100	0	0
Dr. K.V.Subba Raju	Ph.D	Professor	28/04/2014	Basic Sciences	100	0	0
Dr. C.R.Venkateswara Rao	Ph.D	Professor	29/08/2015	Basic Sciences	100	0	0
Dr. G.Patrick	Ph.D	Professor	27/03/2015	Basic Sciences	100	0	0

Dr. G. Srinivas Bapiraju	Ph.D	Professor	05/06/2015	Basic Sciences	100	0	0
Dr. K.V.S.Raju	Ph.D	Assoc. Professor	08/11/2005	Basic Sciences	100	0	0
M. Sridhar	M.Sc, M.Tech	Assoc. Professor	14/09/2006	Basic Sciences	100	0	0
Dr.V.N. Rama Devi	M.Sc., MBA Ph.D	Asst. Professor	07/07/2008	Basic Sciences	200	0	0
Dr. G.Swapna	Ph.D	Asst. Professor	29/04/2015	Basic Sciences	100	0	0
Ms. Y. Gayathri	M.Com M.Phil	Asst. Professor	12/01/2003	Basic Sciences	100	0	0
K. Vagdevi	M.Sc., M.Tech	Asst. Professor	14/09/2005	Basic Sciences	100	0	0
M. Aravind Kumar	M.Phil (Ph.D)	Asst. Professor	30/06/2006	Basic Sciences	50	50	0
V. Lakshmi Prasanna	MA, M.Phil (Ph.D)	Asst. Professor	28/07/2008	Basic Sciences	75	25	0
Nirmalya Kumar Mohanty	M.Sc, M.Tech	Asst. Professor	19/07/2007	Basic Sciences	100	0	0
P. Sujeetha	MA	Asst. Professor	12/09/2007	Basic Sciences	75	25	0
S. Bhagath Kumar	M.Sc, M.Tech	Asst. Professor	10/01/2008	Basic Sciences	100	0	0
Ch. Phani Rama Krishna	M.Sc (Ph.D)	Asst. Professor	05/09/2008	Basic Sciences	0	100	0
R. Lakshmi Kanthi	MA (Ph.D)	Asst. Professor	07/02/2009	Basic Sciences	75	25	0
Ch.Vani	M.Sc	Asst. Professor	09/11/2009	Basic Sciences	100	0	0
Bh Saroja Rani	M.Sc	Asst. Professor	17/07/2010	Basic Sciences	100	0	0
K. Kalpana	M.Sc (Ph.D)	Asst. Professor	21/07/2010	Basic Sciences	100	0	0
M.Haritha Kiranmai	M.Sc	Asst. Professor	21/07/2010	Basic Sciences	100	0	0
Ms. N.Latha	MBA	Asst. Professor	26/07/2010	Basic Sciences	100	0	0
M. Krishna	M.Sc	Asst. Professor	17/10/2010	Basic Sciences	100	0	0
B. Shanti Sree	M.Sc	Asst. Professor	08/08/2011	Basic Sciences	100	0	0
M.V.Srikantha Reddy	M.Sc (ph.d)	Asst. Professor	23/09/2011	Basic Sciences	100	0	0
Ms. D.Roopaa	MBA	Asst. Professor	20/10/2011	Basic Sciences	100	0	0
P. Lakshmi	M.Sc., M.Tech	Asst. Professor	01/07/2012	Basic Sciences	100	0	0
P.M. Rekha	M.Sc (Ph.D)	Asst. Professor	02/02/2012	Basic Sciences	75	25	0
B.Suresh	M.Sc (Ph.D)	Asst. Professor	09/02/2012	Basic Sciences	100	0	0
P.Naveen	M.Sc	Asst. Professor	16/06/2012	Basic Sciences	100	0	0
V.Sesha Sai Kumar Reddy	M.Sc	Asst. Professor	18/06/2012	Basic Sciences	100	0	0
J.Kishore Babu	M.Sc	Asst. Professor	13/09/2012	Basic Sciences	100	0	0
V. Sailaja	MBA	Asst. Professor	26/07/2012	Basic Sciences	100	0	0
Ms. G.Kalpana	M.Sc	Asst. Professor	07/01/2013	Basic Sciences	100	0	0
Ms.Arshia Fathima	M.Sc	Asst. Professor	17/06/2013	Basic Sciences	100	0	0
Ms. Sailaja Eswara	M.A, M.Phil	Asst. Professor	16/10/2013	Basic Sciences	100	0	0
Ms.M.Madhavi	M.Sc	Asst. Professor	07/10/2013	Basic Sciences	100	0	0
Ms. M. Hema Sri	M.SC, M.TECH & M.Phil	Asst. Professor	07/01/2014	Basic Sciences	100	0	0
Ms. Niharika A	B.Tech, PGDM	Asst. Professor	12/01/2014	Basic Sciences	100	0	0
Ms. S.Rama	M.Sc	Asst. Professor	09/02/2014	Basic Sciences	100	0	0
Mr. Yesu M	M.Sc	Asst. Professor	27/08/2014	Basic Sciences	100	0	0
Mr. M.Srinivas	M.Sc	Asst. Professor	22/09/2014	Basic Sciences	100	0	0
Mr. A Sri Hari	M.Sc	Asst.	30/04/2015	Basic Sciences	100	0	0

Faculty Name	Qualification	Designation	Joining Date	Department	Basic	Applied	Other
Mr. V.Vinay Kumar	M.Sc	Asst. Professor	30/04/2016	Basic Sciences	100	0	0
Ms. G. Saimatha	M.Sc	Asst. Professor	30/04/2015	Basic Sciences	100	0	0
M.Pushpa Latha	M.A	Asst. Professor	11/06/2015	Basic Sciences	100	0	0
Mr. J.R. Hari Ram	M.A	Asst. Professor	06/11/2015	Basic Sciences	100	0	0
Ms. Rimy Kulshreshtha	M.A	Asst. Professor	06/12/2015	Basic Sciences	100	0	0
Ms T Sabitha	M.A	Asst. Professor	06/12/2015	Basic Sciences	100	0	0
Ms G Bhuvaneshwari	M.A	Asst. Professor	06/12/2015	Basic Sciences	100	0	0
G. Surekha	M.Tech	Asst. Professor	25/06/2007	ECE	100	0	0
N.Madhusudhana Rao	M.Tech	Asst. Professor	10/07/2007	ECE	100	0	0
G. Satyanarayana	M.Tech	Asst. Professor	23/10/2006	IT	50	50	0
D. Dakshayini	M.Tech	Asst. Professor	15/12/2014	IT	100	0	0
P. Bharathi	M.Tech	Asst. Professor	19/12/2014	IT	50	50	0
Dr.Y.Vijayalatha	Phd	Professor	04/11/2007	IT	50	50	0
K. Sunil Reddy	M.Tech	Asst. Professor	15/04/2014	ME	100	0	0
M.Mamatha Gandhi	M.Tech	Asst. Professor	25/04/2013	ME	100	0	0
K.P Sirisha	M.E	Asst. Professor	20/08/2014	ME	100	0	0
P.Praveen	M.Tech	Asst. Professor	30/04/2015	ME	100	0	0
STGY Sandhya	M.Tech	Asst. Professor	10/06/2013	CSE	100	0	0
K.CH Suneetha	M.Tech	Asst. Professor	10/06/2013	CSE	100	0	0
D. Suguna Kumari	M.Tech	Asst. Professor	04/09/2014	CSE	100	0	0
A. Shravanthi	M.Tech	Asst. Professor	04/09/2014	CSE	100	0	0
H. Suresh	M.Tech	Asst. Professor	05/09/2014	CSE	100	0	0
P.Vijaya Lakshmi	M.Tech	Asst. Professor	06/09/2014	CSE	100	0	0
A. Sowmya	M.Tech	Asst. Professor	26/03/2015	CSE	100	0	0
P.Sujana	M.Tech	Asst. Professor	23/04/2015	CSE	100	0	0
P.Rajesh	M.Tech	Asst. Professor	09/09/2014	CSE	100	0	0
S.P.Raju	M.Tech	Asst. Professor	15/10/2010	CIVIL	50	50	0
P.Sirisha	M.Tech	Asst. Professor	10/02/2014	CIVIL	50	50	0
P.Bharat	M.Tech	Asst. Professor	01/07/2015	CIVIL	50	50	0

## 7.1 Academic Support Units (35)

Total Marks : 30.91

## 7.1.1 Assessment of First Year Student Teacher Ratio (FYSTR) (10)

Institute Marks : 10.00

Year	No. of students(approved intake strength)	No. of faculty members(considering fractional load)	FYSTR	Assessment=(10 x 15)/FYSTR(Max. is 10)
2013-2014	1110	75	14.8	10
2014-2015	1110	75	14.8	10
2015-2016	1080	75	14.4	10

Average assessment

10

## 7.1.2 Assessment of Faculty Qualification Teaching First Year Common Courses (15)

Institute Marks : 10.91

Assessment of qualification =  $3 \times (5x + 3y + 2z0)/N$ , where  $x + y + z0 \leq N$  and  $z0 \leq Z$ 

x = Number of faculty members with PhD

y = Number of faculty members with ME/MTech/NET-Qualified/MPhil

z = Number of faculty members with BE/BTech/MSc/MCA/MA

Year	X	Y	Z	N	Assessment of faculty qualification
2013-2014	11	38	33	45	10.73
2014-2015	13	36	33	45	11.00
2015-2016	13	36	33	45	11.00

Average assessment

10.91

7.1.3 Basic science/engineering laboratories (adequacy of space, number of students per batch, quality and availability of measuring instruments, laboratory manuals, list of experiments) (8)

Institute Marks : 8.00

(Instruction: The institution needs to mention the details for the basic science/engineering laboratories for the first year courses. The descriptors as listed here are suggestive in nature.)

Laboratory description	Space, number of students	Software Used	Type of experiments	Quality of instruments	Laboratory manuals
Engineering Physics Lab - 1	90 sqm / 30	NIL	12 experiments in Optical electrical	Excellent	Available
Engineering Physics Lab - 2	98 sqm / 30	NIL	12 experiments in Optical electrical	Excellent	Available
Engineering Chemistry Lab - 1	85 sqm / 30	NIL	10 experiments in Volumetric and analytical	Excellent	Available
Engineering Chemistry Lab - 2	80 sqm / 30	NIL	10 experiments in Volumetric and analytical	Excellent	Available
Engineering Chemistry Lab - 3	80 sqm / 30	NIL	10 experiments in Volumetric and analytical	Excellent	Available
Computer programming and Data Structures Lab - 1	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu	30 Programs in C language	Excellent	Available
Computer programming and Data Structures Lab - 2	80 sqm / 30	DevC, Turbo C, Linux with Ubuntu	30 Programs in C language	Excellent	Available
Computer programming and Data Structures Lab - 3	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu	30 Programs in C language	Excellent	Available
Computer programming and Data Structures Lab - 4	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu	30 Programs in C language	Excellent	Available
Computer programming and Data Structures Lab - 5	85 sqm / 30	DevC, Turbo C, Linux with Ubuntu	30 Programs in C language	Excellent	Available
Engineering Workshop - 1	133 sqm / 30	NIL	9 experiments in Letterings, Projections, views	Excellent	Available
Engineering Workshop - 2	134 sqm / 30	NIL	9 experiments in Letterings, Projections, views	Excellent	Available
Engineering Workshop - 3	133 sqm / 30	NIL	9 experiments in Letterings, Projections, views	Excellent	Available
IT Workshop Lab-1	120 sqm / 60	Microsoft office, CISCO	16 experiments in Assembling disassembling of components, worksheets involving Microsoft office, installations of OS	Excellent	Available
IT Workshop Lab-2	120 sqm / 60	Microsoft office, CISCO	16 experiments in Assembling disassembling of components, worksheets involving Microsoft office, installations of OS	Excellent	Available

7.1.4 Language laboratory (2)

Institute Marks : 2.00

(Instruction: The institution may provide the details of the language laboratory. The descriptors as listed here are not exhaustive).

Language Laboratory	Space, number of students	Software Used	Type of experiments	Quality of instruments	Guidance
English Language and Communication Skills Lab - 1	85 sqm/60	Study skills, Clarity, Sky pronunciation suite, Teacher	Grammatical Exercises, Phonetics, pronunciation, Resume writing	Excellent	Students are guided & monitored by the instructor
English Language and Communication	85 sqm/60	KAPLAN, Clarity, Sky Pronunciation suite	Oral & Technical Presentations, Vocabulary building, Writing skills,	Excellent	Students are guided & monitored by the instructor

**7.2 Teaching – Learning Process (40)****Total Marks : 40.00**

7.2.1 Tutorial classes to address student questions: size of tutorial classes, hours per subject given in the timetable (5)

Institute Marks : 5.00

(Instruction: Here the institution may report the details of the tutorial classes that are being conducted on various subjects and also state the impact of such tutorial classes).

- Provision of tutorial classes in timetable(Yes/No) Yes
  - Tutorial sheets provided(Yes/No) Yes
  - Tutorial classes taken by: Faculty
  - Number of tutorial classes per subject per week: 1
  - Number of students per tutorial class: 60
  - Number of subjects with tutorials: 1st year..... 2nd year..... 3rd year..... 4th year.....
- 1st Year : 72 2nd Year: 80 3rd Year : 76 4th Year : 55

**Tutorial Classes for the Year 2014-15:**

Branch	I Year	II Year	III Year	IV Year	Total
Electrical and Electronics Engineering	09	10	10	07	36
Mechanical Engineering	09	10	10	07	36
Electronics and Communication Engineering	09	10	09	06	34
Computer Science and Engineering	09	10	10	07	36
Information Technology	09	10	10	07	36
Civil Engineering	09	10	08	07	34
Biomedical Engineering	09	10	09	07	35
Biotechnology	09	10	10	07	36
Total	72	80	76	55	283

Tutorial classes are conducted for majority of the subjects for all the years. Additional exercises are designed for critical theory or practical subjects so as to enhance subject knowledge. Tutorials help the students to understand the subject through analysis, problem solving and in a discussion mode with the tutor. Tutorial impact is apparent through the higher performance level of the students and subsequent evaluation stages and their higher confidence levels when the subject is discussed in subsequent lecture classes.

7.2.2 Mentoring system to help at individual levels (5)

Institute Marks : 5.00

(Instruction: Here the institution may report the details of the mentoring system that has been developed for the students for various purposes and also state the efficacy of such system).

- Mentoring System Yes
- Type of Mentoring Total Development
- Number of faculty mentors ALL
- Number of students per mentor 20
- Frequency of meeting Fortnightly or on need basis

Mentoring program is adopted in GRIET in order to improve the performance of the graduate students. Each mentor is assigned with a group of students (mentees) to closely monitor their academic performance and give timely guidance. Good mentoring is crucial to graduate student success both during and after graduation. Mentoring moves beyond advising because it becomes a more personal relationship that involves socialization into the norms of the profession, role modeling, career guidance, and friendship along with support during research and thesis preparation.

**Duties and Responsibilities of Mentor:**

A Mentor is a teacher doing the role of friend, philosopher and guide to strengthen the weak student's academic performance. A Mentor is responsible for his/her mentees assigned, for the entire academic year and is answerable to the programme coordinator and has the following responsibilities:

- Maintaining the mentoring record of the students containing the information such as contact details, admission details, academic record, co / extra-curricular activities, achievements and disciplinary actions if any.
- Conducting counseling sessions at least once a fort night and keeping a record of it. The frequency of meeting may be increased based on need.
- Noting the physical, mental, and emotional status of the assigned mentees and to provide assistance.
- Keeping a tab on absenteeism in classes or exams, poor academic performance, unacceptable behavior and bringing to the notice of the college authorities and their parents.
- All the counseling sessions lay emphasis on attitudes, value systems, hard work, and career planning.

7.2.3 Feedback analysis and reward / corrective measures taken, if any (5)

Institute Marks : 5.00

(Instruction: The institution needs to design an effective feedback questionnaire. It needs to justify that the feedback mechanism it has developed really helps in evaluating teaching and finally contributing to the quality of teaching).

- Feedback collected for all courses(Yes/No) Yes
- Specify the feedback collection process

1. Feedback is collected through structured forms from students, parents, employees and alumina. 2. Student's feedback on faculty is collected twice in semester once at the beginning of the course and one at the end. 3. Same feedback can also be taken through online 4. Parents, Employers, Alumina as and when they visit the institute, every effort is made to collect feedback. (a) Organisation is responsive to the needs of the stakeholders by continuously monitoring the pulse of the Institution. This will ensure proper implementation of programmes, help to take mid course corrections, provide a mechanism to monitor and reward the good performers at the same time make the lagging behind to improve. Also to ensure an effective feedback and corrective mechanisms (b) Feedback forms are carefully designed for the following stake holders with responsibility indicated in brackets. i. Students (Head of Individual Dept) ii. Faculty (Dean of Faculty Development) iii. Parents (HOD of Individual Dept) iv. Employers (Dean of Training & Placements) v. Alumina (GRIET Alumina Association)

- Percentage of students participating

60

• specify the feedback analysis process

1. Feedback form consists of 10 questionnaires 2. Each questionnaire consists of the grading 4-1 3. Cumulative analysis is done taking help of the feedback form for every faculty 4. Based on the analysis the teaching /learning process is improved Periodicity The Periodicity is chosen to form a valuable and appropriate input (a) Student: Twice in a academic session once after a month of subject coverage and second after the subject completion. (b) Faculty: Twice a year in the month of May and November. (c) Parent: Once on Institute Parent Interaction Day and as and when a parent visits the institution. (d) Employer: Once a year at least. (e) Alumni: Once on Alumni Day i.e. on 15th August of each year.

• Basis of reward / corrective measures, if any

Rewards: Letters of appreciation • Monetary benefits • Encouragement in terms of privileges • Appreciations through mention in public functions Corrective Mechanism (a) The feedbacks are analyzed by respective departmental Heads and provide the summary for discussion for Departmental and Institutional Developmental Monitoring meetings. (b) The student feedback is confidential. Therefore each HOD should exercise while preparing the summary sheet strictly for the benefit of the individual concerned, take his/her signature on the summary sheet and the same needs to be transferred to the appraisal system. (c) Alumni feedback is perused by GRIET alumni association secretary. (d) Employer's feedback need to be reviewed by Dean Training and Placements.

• Number of corrective actions taken in the last three years

37

### Faculty with top feedback grade are appreciated by the department, incentives of the current year are based on the past feedback reports. Faculties with bad feedback are sent to the Faculty Development Programs

7.2.4 Scope for self-learning (5)

Institute Marks : 5.00

(Instruction: The institution needs to specify the scope for self-learning / learning beyond syllabus and creation of facilities for self-learning / learning beyond syllabus.)

- The Co-curricular calendar is published at the beginning of each year which helps students to time their activity and involvement in self-learning.
- College timings are much wider than student working hours, giving students the time to refer and research, consult and learn.
- Time table is framed and provides for adequate leisure time to focus on self learning.
- Two electives in fourth year I Semester and three electives in fourth year II Semester gives ample flexibility to probe into advanced topics in the discipline concerned.
- Each Laboratory curriculum is augmented by one to three experiments beyond curriculum supplementing the syllabus and giving additional skills.
- Students are encouraged to utilize facilities to promote synthesis of knowledge by research while choosing topics for seminars, industry-oriented mini projects or Main project/Dissertation.
- The Programme centers introduce from time to time, innovative ways of combining Certification courses with the curriculums to give a professional touch to the learning process.
- College is created a digital class room as a remote center of IIT Bombay with facilities such as specialized internet 2mbps bandwidth to watch programmes through Aview software. Computers, LCD projector and sound system is provided in the digital to see special video classes from the web.
- Digital library access is given to all the students through wifi internet where they can read latest research papers from the IEEE, Elsevier, Science Direct, McGraw Hill and ACM in the college campus.
- Professional Society Events are conducted in the college through IEEE, ISTE, IETE, IEI and CSI to create a platform for students to discuss various technical topics and demonstrate, exhibit their projects.
- Hardware and software project exhibition is conducted yearly once in the college to encourage students to demonstrate their work to all the college students, faculty, invitees, press and media
- Group discussions and technical quiz actives are conducted regularly to make students curious about innovating things.
- New additional facilities are provided to the students to explore innovative things in the laboratories.

7.2.5 Generation of self-learning facilities, and availability of materials for learning beyond syllabus (5)

Institute Marks : 5.00

(Instruction: The institution needs to specify the facilities for self-learning / learning beyond syllabus.)

The institute patronizes self-leaning environment and has invested in facility building to support and enhance teaching-learning process.

### Self learning facilities available for both the staff and students alike are:

- The Institute Library, a vast repository of volumes and titles
- Department Library, a specialized repository of volumes and titles and projects.
- e-learning Tools
- Digital Libraries (IEEE, ACM, NPTEL)
- e-lessons by faculty on college portal
- CDs, Video bank in the library
- Links to other institutions locally and across the country:
  - Organizing seminars / Technical and Hands-on workshops; taking part in them by students
  - Membership in students-chapter of professional bodies like IEEE, ISTE, IETE, CSI, SAE.
  - Availability of course material from IUCEE
  - Interaction with eminent academic personalities through Guest lectures.
  - Interaction with industry experts through academic alliance events.
  - Organizing and take part in displays and road shows of industry oriented mini projects at the institute.
  - Taking part in Co-curricular activities, contests like X-kernal, Scientific Fore Step and activities of Entrepreneurship Development Cell.
  - Access to streaming videos from 'You Tube' and uploading the projects on to 'You Tube' for receiving open critique.
  - Accessibility to popular Free access journals and resources on line such as:

[www.howstuffworks.com](http://www.howstuffworks.com)

[www.eng-tips.com](http://www.eng-tips.com)

[www.sakshat.ac.in](http://www.sakshat.ac.in)

[www.ocw.mit.edu](http://www.ocw.mit.edu)

The above facilities go on, not only to strengthen the teaching-learning process for the students but also generates- academic discipline, scientific attitude, innovativeness and inculcates the self-learning process, and availability of materials support learning beyond syllabus whose beneficiary are both the faculty and the students.

7.2.6 Career Guidance, Training, Placement, and Entrepreneurship Cell (5)

Institute Marks : 5.00



(Instruction: The institution may specify the facility and management to facilitate career guidance including counselling for higher studies, industry interaction for training/internship/placement, Entrepreneurship cell and incubation facility and impact of such systems)

**GRIET has set up separate cells as per guidelines prescribed, to facilitate and manage career guidance, counseling, industry interaction, entrepreneurship development, incubation facility.**

**Career and Counseling, Training and Placement and the Entrepreneurship Development cell are under the charge of a senior faculty with industrial experience.**

### **Career Guidance and Counseling Cell (CG &C):**

The Dean of Career Guidance and Counseling monitors the cell. The cell provides, Career Guidance and Counseling to students as per requirement.

- The Dean CG &C is assisted by 32 Counselors (8 Branches x 4 Batches each) who are faculty from respective Programme/Branch/Discipline.
- The cell reaches out to the students both professionally and personally.
- All eligible and employable graduates are transformed into competent employees for prospective industrial houses both in India and overseas with the help of CG&C
- In its service CG&C apart from career guidance, it also organizes seminars on career planning, soft skills development and campus recruitments and also interacts proactively with Industry HRD cells to facilitate campus placements.
- The Dean CG&C and his counselors are accessible to the students and it makes adequate arrangements for the guidance of students during admissions. They are counseled on choice of careers, and show empathy to their state of confusion and anxiety. They are also given psychological and social counseling apart from academic and career counseling.
- CG&C share a common facility created with the training and placement cell. Facilities available includes: One air conditioned Seminar hall with seating capacity for 250 persons with Wi-Fi and LCD projectors and screens, stage lighting and audio equipment. This is used for seminars on soft skills and technical subjects and for free placement seminars by companies.
- Air conditioned cabins are available for conducting interviews and one to one discussions.
- There are 19 discussion rooms provide the necessary accommodation for any information exchange.
- Dean Career Guidance and Counseling also assists the Training and Placement cell on the vital aspect of higher education.
- Books and software are available in Library for GATE/GRE / TOEFL / IELTS / GMAT/CAT preparation.
- GATE preparation books written by GRIET staff are also made available.
- Awareness lectures are given by Dean and other senior faculty from time to time.
- Alumni studying at IIMs, IITs whenever they visit GRIET are made to interact with students.
- Consultants of Higher Education and Universities of repute are invited to interact with students for clarification on higher studies, admission procedures, requirements and immigration rules.

### **Impact:**

#### **Higher studies information (MBA, M. Tech and MS)**

For higher studies both in India and abroad for last three years record is as follows:

<b>Batch</b>	<b>Higher Studies Students in Abroad</b>	<b>Higher Studies Students In India</b>	<b>Total</b>
2013	75	80	155
2014	80	60	140
2015	82	130	212

#### **Training & Placements Cell:**

Training and placements is one of the vital departments at GRIET. The cell is handled by a senior faculty with rich experience who is also Dean Training and Placement. He is also associated with Dean CG & C. The broad areas handled by the cell are:

1. Training on Soft Skills and personality development right from first year so as to prepare students for careers in industry.
2. It coordinates with industry for campus training, internship and for suitable placements.

#### **The activities consist of:-**

- Arranging personality development sessions both by experts from college, and from industry consultants like Time, Globe Arena, Career Path etc, appropriate to the year of study.
  - In the first year B.Tech. the focus is on goal setting and value systems
  - In the second year B.Tech. Time Management, Communication and Analytical Skills.
  - In the pre final and final years B.Tech. Group discussions, Interview skills, mock Interviews, H.R. & Technical Aptitude tests are conducted.
- College organize a unique Programme called 'Parampara', which is an interactive session between students in final year who are placed with pre-final students and also with the alumni who are about to face placement interviews.
- Periodic motivational lectures from industry experts.
- Periodic psychometric tests to assess the students.
- Arrange internships with industry and R&D.
- Arrange noted Consultants of Higher Education and Universities of repute- interaction sessions to clarify on higher studies, admission procedures, requirements and immigration rules.

### **Facilities**

GRIET Training and Placement section is staffed well with qualified personal as below.

- GRIET Training and Placement section is staffed well with qualified personal as below.

Dean Training and Placements	1
Dean Career Guidance and Counseling	1
Training and Placement Officer	1
Placement Coordinators	2

Placement Assistant	1
---------------------	---

- One Air conditioned Conference Hall is available with capacity of 250 students at a time. This is being used for giving training to the students of all academic years for soft skills development and technical subjects. This is also being used for the Pre-placement Talk by companies during Campus Placements.
- Air-conditioned rooms are available to simultaneously conduct a number of panels of Group Discussions (GDs), with each panel accommodating up to about 12 students.
- Air-conditioned cabins are available to simultaneously conduct interviews for a large number of students.
- Rooms are available to simultaneously conduct written test for a large number of students during Campus Placements.
- Online test can be conducted for about 200 students at a time.
- E-mail groups are formed every year for each batch of final year students for effective communication with the final year and passed out students.

### Impact:

Batch	Placements
2013	470
2014	520
2015	532

## Entrepreneurship Development Cell and Incubation Facility:

Entrepreneurship Development Cell (EDC) is inaugurated on 5<sup>th</sup> October 2005 at Gokaraju Rangaraju Institute of Engineering and Technology with the aim of

- Developing entrepreneurial awareness and ability in students
- Creating a forum for potential entrepreneurs
- Developing an interface between academy and industry

The following programs are organized to develop entrepreneurship skills in students and also to familiarize them with various procedures required in converting an idea into a successful business.

It is handled by EC &IF coordinator who is senior faculty with experience.

### Entrepreneurship Activities:

Year	Event	Achievement/ Impact
2012-13	<ol style="list-style-type: none"> <li>1. Student Competition on 'Entrepreneurship challenge'</li> <li>2. Lecture by Patent Awareness</li> <li>3. MSME Program on Entrepreneurship</li> </ol>	<ol style="list-style-type: none"> <li>1. Mr. VV Hitheswar successfully launched YQ Software Ltd.</li> <li>2. Eight students joined family business in 2011-12</li> <li>3. Thirteen students joined family business in 2012-13</li> </ol>
2013-14	<ol style="list-style-type: none"> <li>1. Organized a guest lecture by eminent and entrepreneur Mr. Srikanth of sunfield energy pvt.Ltd on 23.10.2013</li> <li>2. An interactive session with CEO of Fortune Automobiles Mr. Nirav Modi on 22.11.2013</li> <li>3. Conducted competition on exhibiting innovative products on 22.01.2014</li> </ol>	<ol style="list-style-type: none"> <li>1. Explained entrepreneur opportunities to students</li> <li>2. Motivation to students</li> <li>3. Students participated with their ideas received the prizes and appreciation certificates</li> </ol>
2014-15	<ol style="list-style-type: none"> <li>1. Organized a seminar on importance of entrepreneurship on 27-8-2014 and Assistant Director MSME was chief guest</li> <li>2. Conducted "idea tree" on 19-2-2015</li> <li>3. Conducted an FDP for GRIET Staff from 26-3-2015 to 8-4-2015 in collaboration with Centre for Entrepreneurship Development GRIET initiated the culture of incubation centres in association with Govt. of India and private industries.</li> <li>4. GRIET established incubation centre with Micro Small Medium Enterprise (MSME)</li> <li>5. GRIET received grant worth Rs. 52 lakhs funding for 8 projects from MSME (Micro Small Medium Enterprise) a central government organization for encouraging students to become entrepreneurs</li> </ol>	<ol style="list-style-type: none"> <li>1. motivated the students</li> <li>2. selected 2 ideas to be presented for Financial assistance to MSME</li> <li>3. thirty faculty participated in this program</li> <li>4. encouraging students to become entrepreneurs</li> </ol>

GRIET lays stress on beyond academic activities through structured Co- and Extra-curricular activities integrated and spread over the entire academic year, as they have profound impact in shaping up the overall personality of a student.

- a. All activities are preplanned and included in the college diary.
- b. All activities are planned and executed by the student bodies with assistance from faculty when needed.
- c. **Pragnya** (the Tech festival) and **Pulse** (the Cultural festival) are the major annual attractions.

## Co-curricular activities:

### a) Associations:

- Computer Society of India
- IEEE, IETE
- Society for Automobile Engineers
- Indian Society for Technical Education (ISTE)
- Free Software Foundation
- Indian Concrete Institute
- Robotics Club
- Gaming Club
- Faculty Club
- GRIET is a life member of Institution of Engineers

GRIET – IEEE student branch is declared as III best exemplary branch in 2012-13 in R10 (Asia Pacific Region 10)

### b) Annual Events:

- **Spirals:** This event focuses on literary activities such as debates, essay writing, elocution, crosswords; treasure hunts etc such that skills required projecting one's intellect and personality are sharpened and honed.
- **Quizzicals:** This event aims to provide a platform to concentrate on facts and figures with spontaneity in this competitive world through quiz programmes.
- **x-Kernel:** This event conducts periodic contests mainly in the software area.
- **Scientific Forestep:** Skills in hardware are put to constant test through this event.
- **i-TRIX and e-TRIX:** These are popular annual events on Robotics including both hardware and software components and students from across the country competes.
- **Pragnya:** An annual technical fest is organized during September-October.

## Extra-Curricular Activities:

### a) Games:

The Institute has a college team in all major games and sports. The teams participate in inter-university and state level tournaments and have won the prizes. GRIET has been regularly winning the local tournaments.

### b) Cultural Activities:

The College has been conducting annual cultural competitions every year through the following bodies.

- **Rhythms:** Rhythms is an annual event wherein the students showcase their talents in music and dance. Competitive spirit is infused by way of awards and prizes for best performance. The event has created a Rock Band which has set a trend.
- **Spices:** This is an annual event where the culinary skills of students are tested annually – it is unique and the most popular contest in GRIET
- **Pulse:** A cultural festival held during the months of Jan-Mar every year to showcase the talents in dance, music and to witness the performances of famous Indian artists.

### c) NSS Activities:

The National Service Scheme Unit of GRIET is actively involved in making students to be socially conscious by promoting involvement in the following activities:

- Involvement with **NIRMAN**, a home for mentally challenged students at Chintal, Hyderabad. Every year time and assistance is spared to make a one day memorable for the inmates. On 15 Aug 2011, students of Mechanical Engineering designed & Manufactured a paper plate making machine as part of the final year project and donated the same to **NIRMAN** to make them self reliant. A true example of Engineers Social Responsibility vindicating the GRIET Mission statement.
- Associated with '**Sahaya**', a home for destitute children at Miyapur, Hyderabad.
- **Blood Donation Camp:** GRIET is honoured by Governor, AP in June 2011 for being the highest donor in college category by Red Cross Society. The College has received this award four times in the last five years.
- **Green Campus awareness:** Waste disposal, power and water optimization, plantations etc.
- In the recently held great power race, clean energy campus competitions in India, China & US in July-Oct 2010, GRIET is adjudged the second best.
- As part of WOW (Wealth from Waste), an effort from ITC, GRIET was appreciated as one of the top contributors in saving Trees. GRIET was felicitated on National Recycling Day on 01 July 11.
- Relief activities during floods in AP in October 2009
- **Reudo:** An Environmental fest is organized annually.

**d) Other activities:**

College promotes literary expressions through **REFLECTIONS** the college annual magazine, and **GEM** (GRIET E Magazine) a monthly letter.

**Other Important Annual Functions are as follows:**

- **Annual Day:** Celebrated on 26 January of each year
- **Graduation Day:** Second Saturday in July of each year. A unique celebration similar to the convocation ceremony in University. Graduate students are presented with provisional certificates in traditional graduation robes.
- **Alumni Day:** 15 Aug of each year Alumni meet at the college
- **Parents Interaction Day:** Parents are welcome to interact on every second Saturday
- **Women's Day**
- **Blood Donation Day**
- **Teachers Day, Engineers Day are also celebrated.**

7.2.8 Games and Sports facilities, and qualified sports instructors (5)

Institute Marks : 5.00

(Instruction: The institution may specify the facilities available and their usage in brief)

GRIET understands that real education should concentrate on activities to develop body, mind and soul. There is adequate emphasis and facilities for physical activities. The Director of Physical Education supervises the students, oversees the management of equipment and the facility apart from interacting with other external sporting bodies for involving his protégé's in sports competitions. Sports and games is an essential extra - curricular activity to maintain **competitive** spirit, discipline and team spirit. Physical education also encourages the talented sports persons of the institute to excel in the all India inter-university competitions. Those who come out with good performance are given suitable incentives.

The Director of Physical Education as the chief organizer of the sports events plans, conducts and supervises them throughout the year.

**Sports Facilities available in the college:**

<b>OUTDOOR GAMES</b>				
S. No.	Name of the Event	Facility available	Management	Usage of Students
1	Basket Ball	38 x18 mtrs	Physical Director	60
2	Volley Ball	28 x 20 mtrs		120
3	Foot Ball	110 x 70 mtrs		80
4	Hockey	100 x 50 mtrs		20
5	Throw Ball	20 x 15 mtrs		150
6	Tennikoit	12 x 9.5 mtrs		75
7	Shuttle Badminton	13.5 x 6 mtrs		50
8	Ball Badminton	24 x 12 mtrs		30
9	Atheletic Track	200 mtrs		20
10	Cricket	Hard Pitch		200
<b>INDOOR GAMES</b>				
S.No.	Name of the Event	Facility available	Management	Usage of Students
1	TT	5 International Standard tables	Physical Director	80
2	Carroms	5 Game Boards		50
3	Chess	10 Game Boards		50
4	Gymnasium	Assorted Fitness Equipment worth Rs.15 lakhs		40
5	Billiards	1 Table with accessories		30

All the games and sports as mentioned above are extensively played every working day also at times holidays are also utilized for play in the spirit of competition.

Listed below are the categories and events that the students have participated in National / International and won awards in the last three academic years.

**National and International Achievements****1. G. Rohit of ECE (2006-10 Batch) is a Chess Player and**

- Participated in World Junior Chess Championship
- Runner in Asian Junior Chess Championship
- Participated four times in All India Inter University Championship
- Winners in JNTU Inter University Championship

**2. K. Sreekanth of Civil Engineering (2009-13 Batch) is a Cricket Player and**

- Participated under 25 Andhra 'A' Team
- Participated under 22 Andhra Team
- Participated in South Zone Inter University Championship
- Runners Vizzy Trophy
- Participated in Ranji Trophy T20
- Selected for BCCI Specialist Academy Chennai

**Other Achievements**

Session	Category Name	Event Name	Organizer	Results
	Cricket	JNTU Tournament	JNTUH	Winners
	Volley Ball	BIE Tournament	Bharat Institute of Engineering	Winners

2012-13	Badminton (Singles)	CBIT Tournament	CBIT	Winners
	Cricket	Nexus Tournament	-	Runners
	Shuttle	JNTU Zonals	JNTUH	Runners
	Table Tennis (Singles)	JNTU Tournament	JNTUH	Runners
2013-14	Basket Ball	CMR Tournament	CMR College	Runners
	Football	SNIST tournament	SNIST	Runners
	Football	MGIT Tournament	MGIT	Runners
	Football	CVSR Tournament	CVSR	Runners
	Basket Ball	Sreenidhi Tournament	Sreenidhi	Runners
	Basket Ball	NBA JAM	NBA	Runners
	Basket Ball	Osmania University Tournament	OU	Winners
	Basket Ball	All India BITs PILANI	BITs PILANI	Runners
	Basket Ball	HITAM College Tournament	HITAM College	Runners
	Basket Ball	CMR College Tournament	CMR College	Runners
	Cricket	MGIT Tournament	MGIT	Runners
	Table Tennis (Doubles)	SNIST Fest	SNIST	Runners
	Table Tennis (Singles)	SNIST Fest	SNIST	Runners
	2014-15	Cricket	Vignan University Tournament	Vignan University
Cricket		MVSR	MVSR	Semis
Cricket		Aurora	Aurora	Semis
Cricket		JNTU Zonals	JNTU	Leagues
Cricket		JNIT	JNIT	Quarters
Cricket		Telangana	Telangana	Semis
Cricket		JNTUH tournament	JNTUH	Runners
Cricket		MGIT Tournament	MGIT	Runners
Basket Ball		MRCET Tournament	MRCET	Runners
Basket Ball		CMRIC Tournament	CMRIC	Runners
Basket Ball		VNR SLASH Tournament	VNR	Runners
Basket Ball		MVSR Tournament	MVSR	Winners
Basket Ball		HITAM Tournament	HITAM	Winners
Basket Ball	BITS Hyderabad All India Tournament	BITS	Runners	

**8 Governance, Institutional Support and Financial Resources (75)****Total Marks : 75.00****8.1 Campus Infrastructure and Facility (10)****Total Marks : 10.00**

## 8.1.1 Maintenance of academic infrastructure and facilities (4)

Institute Marks : 4.00

(Instruction: Specify distinct features)

- Immaculately maintained campus with aesthetic Green coverage by Housekeeping and gardening personnel.
- All rooms have ample and large windows for day light and ventilation, Electrical illumination and electric fans as backup. Furnished Class rooms and labs with Desks and chairs, experiment tables; Lecture halls have White board, Over-head Projectors and LCD projectors-on demand, Wi-Fi internet. Maintained by qualified and trained Technical support staff.
- Laboratories are well equipped for the contemporary experiments as well as for projects, maintained by Laboratory Technicians and support staff.
- The campus has a fiber-optic cable backbone between the buildings and has Wi-Fi internet connectivity manned by qualified technical staff. Well-equipped workshops.
- Library Facility available at both Central and Department levels. Central library is maintained by the Librarian and support staff.
- Four seminar halls with seating capacity of 250 persons and a Main seminar hall with seating capacity for 450 persons, maintained by the House keeping and Trade technicians.
- Fully furnished and equipped Department Seminar Halls with LCD TV/Monitor, Projection screen, Lectern, Audio-Video equipment, Power backup and Air-conditioners, maintained by the House keeping and Trade technicians.
- Fully equipped and manned Career Guidance, Training and Placement cell. Open air Amphitheater and stage with seating capacity for 2000 persons.
- Adequate Toilet facilities are maintained by housekeeping. Reverse Osmosis water treatment Plant for purified drinking water.
- The raw water is brought by water tankers on a need basis for drinking and general purposes. Ample parking space on campus, coordinated by the Security wing.
- Oriental Bank of Commerce, Bachupally, GRIET campus- a nationalized bank with ATM facility on campus is maintained by branch personnel.
- Equipped Sports facilities for both Outdoor and Indoor games supervised by the Physical Director and manned by support staff.
- Hygienic Food Service by a Canteen, Kiosks and other catering facilities maintained by contractors. Institute owns a Fleet of Buses and Vans to cater to transportation needs of staff and students.
- They are operated and maintained by a team of experienced drivers, cleaners overseen by a Supervisor-Transport department and his support staff.
- The bus service covers all the corners of the city as per student demand.
- Stationery and Reprographic Centre maintained by contractor.
- Stand by Generators for uninterrupted power supply apart from UPS at vital nodes maintained by Support staff.
- The Institute contributes to reduction in Carbon foot print by adopting Green initiative -Solar Power generation with an installed capacity of 110 kW, the excess power being transferred to the State Power grid.
- Established Infrastructure Maintenance team of Housekeeping, Mechanical, Electrical, Plumbing, civil trades. Round-the-clock Security Team and Surveillance devices, maintained by Contractor.
- Dedicated Health Centre with Doctor and a Paramedic.

**Transport facility:** College owns an exclusive fleet of 32 Light and Heavy vehicles for students and staff, ferrying them to and from notified stops on prominent routes in the surrounding areas and Special routes running across the city connecting borders of the city limits including maintenance vehicles.

Category	Passenger Buses	Mini Buses	Minivan /Trucks/Trollies
Student	19	7	-
staff	1	1	-
maintenance	-	-	Mini trucks-2; Water Tanker -1; Tractor Trolley-1

The routes and destinations are designed to transport students residing along an axis based on their density. The drivers are whetted for their experience and driving skills required to drive Education Institution vehicles and the support staff are trained to ensure safe and prompt shuttle services keeping the schedules. All Vehicles used are complying with the safety norms laid down by the Road Transport Authority for educational institution passenger vehicles. The Institute Transport committee periodically updates the staff on safety and related issues.

#### Canteen Facility:

Meeting the shift timings of Instructions for each batch of students the diet component is kept in mind to facilitate them with healthy food made by approved contractors. A spacious built-up facility is provided specifically for dining and refreshments for both staff and students. The Boys and girls section is demarcated so is the staff section to provide relaxed environment while consuming food. Hygiene is constantly monitored via feed back to the Canteen committee.

Additionally the institute runs the "Annarasadam Scheme", a social initiative to promote "sharing/ giving food" concept amongst GRIET members. The scheme started with providing 'free lunch' for 5 persons and has grown with voluntary contributions from staff members to provide free meals to up to 200 persons by noon. Volunteers from both students and staff apart from 2 cooks from support staff prepare homely meals and also help in self-service.

8.1.3 Electricity, power backup, telecom facility, drinking water, and security (4)

Institute Marks : 4.00

(Instruction: Specify the details of installed capacity, quality, availability, etc.)

#### a) Electricity

Description	Qty
Transformers	2

#### b) Power Backup

Description	Qty
Diesel Generator Sets: 250KVA -1 No.	2
160 KVA -1 No.	
UPS 10 KVA	1
UPS 5KVA	6
Solar power systems10 KVA	1
Solar power systems100 KVA	1

#### c)Telecom Facility

Description	Qty
Tata Indicom (Land lines)	10
Mobiles	10

#### d) Drinking Water

Description	Qty
R.O. Plant with a capacity of 3000 litres per hour	1
Tanker (12 KL) to convey	1
Mineral Water coolers with purifiers	30

#### e)Security

Description	Total
Security staff	35
Supervisors	3

## 8.2 Organisation, Governance, and Transparency (10)

Total Marks : 10.00

8.2.1 Governing body, administrative setup, and functions of various bodies (2)

Institute Marks : 2.00

(Instruction: List the governing, senate, and all other academic and administrative bodies; their memberships, functions, and responsibilities; frequency of the

Committee	Chair	Members	Policies																																			
Governing Body	President Dr. Gokaraju Ganga Raju	<table border="1"> <tr> <td rowspan="4">Management</td> <td>Sri G.V.K. Ranga Raju</td> <td>Vice-President</td> </tr> <tr> <td>Sri G. Rama Raju</td> <td>Member</td> </tr> <tr> <td>Smt A. Vani</td> <td>Member</td> </tr> <tr> <td>Prof P S Raju</td> <td>Member</td> </tr> <tr> <td rowspan="2">Teachers of the Institute</td> <td>Dr. S. V. Jayaram Kumar</td> <td>Member</td> </tr> <tr> <td>Dr. S. Rama Murthy</td> <td>Member</td> </tr> <tr> <td>Educationist/</td> <td>Prof. V S Raju</td> <td>Member</td> </tr> <tr> <td>Industrialist</td> <td>Sri V Rajanna</td> <td>Member</td> </tr> <tr> <td>AICTE Nominee</td> <td>Mr. S. K. Jena</td> <td>Member</td> </tr> <tr> <td>UGC Nominee</td> <td>Dr. S. Devaneshan</td> <td>Member</td> </tr> <tr> <td>State Government Nominee</td> <td>Dr. S. Narsing Rao</td> <td>Member</td> </tr> <tr> <td>University Nominee</td> <td>Dr. A. Damodaram</td> <td>Member</td> </tr> <tr> <td>Principal of Institute</td> <td>Dr. Jandhyala N Murthy</td> <td>Member-Secretary</td> </tr> </table>	Management	Sri G.V.K. Ranga Raju	Vice-President	Sri G. Rama Raju	Member	Smt A. Vani	Member	Prof P S Raju	Member	Teachers of the Institute	Dr. S. V. Jayaram Kumar	Member	Dr. S. Rama Murthy	Member	Educationist/	Prof. V S Raju	Member	Industrialist	Sri V Rajanna	Member	AICTE Nominee	Mr. S. K. Jena	Member	UGC Nominee	Dr. S. Devaneshan	Member	State Government Nominee	Dr. S. Narsing Rao	Member	University Nominee	Dr. A. Damodaram	Member	Principal of Institute	Dr. Jandhyala N Murthy	Member-Secretary	<ol style="list-style-type: none"> <li>To set and monitor the organizations mission, purpose, direction, priorities and strategies within the boundaries of the organizational policies and bye-laws.</li> <li>To approve the institution of new programmes of study, leading to the award of Degrees and or Diplomas based on the recommendations of the Academic Council.</li> <li>To develop policies that allows the organization to serve well all its stakeholders.</li> <li>To monitor the organizations programmes and services by influencing decisions and finances.</li> <li>To institute scholarships, fellowships, studentships, medals, prizes and certificates.</li> <li>To monitor development, the direction and growth of the institute and issue directions and recommendations.</li> <li>To perform such other functions and institute committees, as may be necessary and deemed fit for the proper development and fulfill the objectives of the institute.</li> <li>To approve appointments made by the Appointment/Selection Committee.</li> </ol> <p><b>Committee Scheduled Meetings:</b> Once in Three months</p>
Management	Sri G.V.K. Ranga Raju	Vice-President																																				
	Sri G. Rama Raju	Member																																				
	Smt A. Vani	Member																																				
	Prof P S Raju	Member																																				
Teachers of the Institute	Dr. S. V. Jayaram Kumar	Member																																				
	Dr. S. Rama Murthy	Member																																				
Educationist/	Prof. V S Raju	Member																																				
Industrialist	Sri V Rajanna	Member																																				
AICTE Nominee	Mr. S. K. Jena	Member																																				
UGC Nominee	Dr. S. Devaneshan	Member																																				
State Government Nominee	Dr. S. Narsing Rao	Member																																				
University Nominee	Dr. A. Damodaram	Member																																				
Principal of Institute	Dr. Jandhyala N Murthy	Member-Secretary																																				
Academic Council	Principal	<ol style="list-style-type: none"> <li>Heads of Departments.</li> <li>Four faculty members other than the Heads of Departments representing the various categories (by rotation and seniority).</li> <li>Four persons including educationalists of repute, one person from the industry and engineering related to the activities of the institute, who are not in the service of the institute and nominated by the Governing Body.</li> <li>Three nominees of the parent university</li> <li>A faculty member nominated by the Principal of the institute to act as Member Secretary.</li> </ol>	<ol style="list-style-type: none"> <li>To exercise general supervision over the academic work of the institute, to give directions regarding method(s) of instruction, evaluation, research and improvements in academic standards.</li> <li>To scrutinize and approve the proposals of the Board of Studies related to courses of study, academic regulations, curricula, syllabi, their objectives and outcomes and modifications, instructional and evaluation arrangements, methods, procedures etc.</li> <li>To make regulations regarding the admission of students to different programs of study.</li> <li>To recommend to the Governing Body the proposals of institution for new programs of study.</li> <li>To recommend to the Governing Body, institution of scholarships, studentships, fellowships, prizes and medals, and to frame regulations for the award of the same.</li> <li>To advise the Governing Body on suggestion(s) pertaining to academic affairs made by it.</li> <li>To perform such other functions as may be assigned by the Governing Body.</li> </ol> <p><b>Committee Scheduled Meetings:</b> Two time a year</p>																																			
Board of Studies	Chairman Board of Studies	<ol style="list-style-type: none"> <li>Programme Coordinators of the Department.</li> <li>All teaching faculty of each course/ specialization offered.</li> <li>Module coordinators.</li> <li>Two external experts in the course concerned and nominated by the Academic Council.</li> <li>One expert to be nominated by the Vice-chancellor from a panel of six recommended by Principal of the institute.</li> <li>Not more than two persons to be co-opted for their expert knowledge including those belonging to the concerned profession or industry.</li> <li>One post-graduate meritorious alumni nominated by the Principal.</li> <li>The Chairman Board of Studies may with the approval of the Principal of the Institute co-opt: <ol style="list-style-type: none"> <li>Experts from outside the institute whenever special courses of studies are to be formulated.</li> <li>Other members of the staff of the same faculty.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>To prepare, frame and modify the syllabus for the various courses keeping in view the Programme objectives of the programme.</li> <li>Evaluates programme effectiveness and proposes continuous improvement.</li> <li>To suggest panel of names for appointment of examiners; and coordinate research, teaching, extension and other academic activities in the programme / institute.</li> <li>To suggest new methodologies for innovative teaching and evaluation techniques and tools.</li> <li>To review implementation of institutional quality assurance in the department for improving programme.</li> <li>Guiding in evolving POs and COs based on assessment.</li> </ol> <p><b>Committee Scheduled Meetings:</b> As and when necessary</p>																																			
Finance Committee	Principal	<ol style="list-style-type: none"> <li>One person nominated by the Governing Body of the institute for a period of two years.</li> <li>Two senior-most faculty member of the institute to be nominated in rotation by the principal for two years.</li> </ol>	<ol style="list-style-type: none"> <li>To review the financial affairs of the Institute and report it to the Governing body.</li> <li>To consider budget estimates relating to the grant received/receivable from funding agencies, and income from fees, etc. collected for the activities to undertake the scheme of autonomy;</li> <li>To prepare Annual Budget of the institution and Audited accounts for all the incomes and expenditures.</li> <li>To review the audit reports and making recommendations.</li> </ol>																																			

		3. Administrative Officer (Finance).	3. To contribute to the preparation of the draft budget and recommending their approval to the Governing Body.  <b>Committees Scheduled Meetings:</b> Once a Year
Selection Committee	Chairman of Governing Body or his nominee	1. Principal / Director of the institute. 2. Two nominees of the Vice Chancellor of the affiliating University. 3. Two subject experts 4. Head of the concerned programme of Professor Cadre.	1. To prepare a detailed list of vacant posts in all the programmes of the institute based on consultations with the Institute development committee, the HODs of various programmes and guidelines from various agencies like UGC, AICTE, Parent University and the State Government. 2. To oversee notification, publication and scrutiny of the applications received before scheduling the tests, interviews and demo lectures. 3. To involve in the pro-active recruitment periodically of high quality faculty with exceptional qualifications from India or overseas. 4. To facilitate highly qualified personnel from both industry and R & D institutions as adjunct or visiting faculty for short durations to undertake teaching / research assignments.  <b>Committee Scheduled Meetings:</b> Two time a year
Internal Quality Assurance Committee (IQAC)	Chairperson: Principal	1. Senior Administrative Officer 2. Administrative Officer 3. Faculty Members from all branches -7 4. Management Member-1 5. Student Members- 2 6. External Members- 2 (Industry and University) 7. Senior Professor Coordinator -1	1. Development of quality benchmarks/parameters for various academic and administrative activities of the institution and carry out the gap analysis for GRIET. 2. Facilitating the creation of a learner-centric environment conducive to quality education and faculty maturation to adopt the required knowledge and technology for participatory teaching and learning process carrying out periodic check of course outcome attainment and action taken from each faculty and its mapping on to POs, PEOs. 3. Monitor the action taken by departments on feedback response from students, parents and other stakeholders on quality-related institutional processes. 4. Dissemination of information on various quality parameters of higher education. 5. Organization of inter and intra institutional workshops, seminars on quality related themes and promotion of quality circles. 6. Documentation of the various programmes/activities leading to quality improvement. 7. Acting as a nodal agency of the Institution for coordinating quality-related activities, including adoption and dissemination of best practices, in tune with the institution strategic plan and goals by various departments. 8. Development and maintenance of institutional database through MIS for the purpose of maintaining /enhancing the institutional quality. 9. Development of Quality Culture in the institution. 10. Preparation of the Annual Quality Assurance Report (AQAR) and submit to NAAC.  <b>Committee Scheduled Meetings:</b> Two times a year or as and when needed.
Institutional Development Monitoring Committee (IDMC)	Principal-IDMC Coordinator	1. Heads of all Departments/ Programme coordinators. 2. Two external members, 3. The administrative officer, 4. Two deans/senior Professors. 5. Student Representative from UG and PG programmes.	1. Principle Planning Body 2. Monitoring of Institute performance by Top Down-Bottom Up approach. 3. Monitors the attainment of Mission and Vision of Institute. 4. Evaluation of Departmental Mission and Vision, Programme specific POs and PEOs. 5. Taking suggestions from all stake holders and its subcommittees -Academic Affairs Committee, Departmental  Development and Monitoring Committee, Class Coordinators Committee.  6. To provide the developmental and application of quality benchmarks/ parameters for the various academic and administrative activities of the institution. 7. To monitor promotion, implementation and continuous improvement of innovations in Curriculum, Co-curricular and Extra-curricular activities and facilities of the institution. 8. To advice and recommend the General Body and the academic council on any matter, that is considered necessary for the fulfillment of the objectives of the institute for consideration and approval. 9. To promote synergetic relationship with the industry and



			<p>society, and promote research and consultancy.</p> <p><b>Committee Scheduled Meetings:</b> Once in three months.</p>
Academic Affairs Committee	Dean Academic Affairs	<ol style="list-style-type: none"> <li>1. Deans of the institute</li> <li>2. HODs of all the programmes.</li> </ol>	<ol style="list-style-type: none"> <li>1. To monitor and review academic activities as per academic calendar.</li> <li>2. To monitor programme adherence of course work as per framed time tables.</li> <li>3. To monitor attendance and implement promotional policy based on attendance and credits.</li> <li>4. To generate student data required for Student Information System (SIS).</li> </ol> <p><b>Committee Scheduled Meetings:</b> Once in three months or as and when needed</p>
Departmental Development and Monitoring Committee (DDMC)	Head of the Department	<ol style="list-style-type: none"> <li>1. All faculty are members- one among them will act as Secretary,</li> <li>2. Members may be co-opted from other programmes, University, industry and key stake holders as per requirement</li> </ol>	<ol style="list-style-type: none"> <li>1. To formalize the departmental vision and mission.</li> <li>2. Deliberates on the report of Programme Assessment Committee (PAC) and future issues.</li> <li>3. To plan and monitor the growth of programmes of the department.</li> <li>4. Develops and recommends new or revised PEOs</li> <li>5. To ensure infrastructure, support facilities and activities to ensure for attainment of PEOs.Â</li> </ol> <p><b>Committee Scheduled Meetings:</b> Two times a semester or as and when needed.</p>
Programme Assessment Committee (PAC)	Programme Coordinator	<ol style="list-style-type: none"> <li>1. Module Coordinators</li> <li>2. Faculty of a particular course</li> <li>3. Class Coordinators</li> </ol>	<ol style="list-style-type: none"> <li>1. To monitor feed backs from stake holders and taking action thereafter on academic matters</li> <li>2. To monitor assessment and attainment of COs, POs and PEOs.</li> <li>3. Evaluate Programme effectiveness and propose necessary changes for continuous improvement.</li> <li>4. Motivate faculty and students to attend workshops, developing projects, working models, paper publications and research.</li> <li>5. Interacts with Students, faculties, Programme coordinator, Module coordinators, and external stake holders in facilitating PEOs.</li> <li>6. The report is submitted to the Department Development &amp; Monitoring Committee</li> </ol> <p><b>Committee Scheduled Meetings:</b> Once a semester or as and when needed.</p>
Class Coordinating Committee (CCC)	Respective Class Coordinator	<ol style="list-style-type: none"> <li>1. Faculty of a particular course</li> <li>2. Student representatives.</li> </ol>	<ol style="list-style-type: none"> <li>1. To tap the suggestions of the students, to enhance teaching-learning process.</li> <li>2. To monitor and improve the relations and shortfalls between academics and teaching environment.</li> <li>3. Review of activities related to attainment of course outcomes</li> </ol> <p><b>Committee Scheduled Meetings:</b> Two times a semester or as and when needed.</p>
Research committee	Dean R&D	<ol style="list-style-type: none"> <li>1. Five Staff members with R &amp;D /Industry experience nominated by the Principal of the institute</li> </ol>	<ol style="list-style-type: none"> <li>1. To encourage faculty from each programme to submit research projects for extra-mural funding.</li> <li>2. To screen, modify and submit the projects to funding agencies.</li> <li>3. To promote tie-up with industry and other reputed universities.</li> <li>4. To monitor the progress of the sanctioned projects, consultancy, patents and tie-ups.</li> <li>5. To initiate industry-institute interaction for promoting new projects.</li> <li>6. To guide and counsel, conduct courses on Entrepreneurship.</li> </ol> <p><b>Committee Scheduled Meetings:</b> Two times a year or as and when needed.</p>
Institute Coordinators Committee (ICC)	Dean Student Affairs	<ol style="list-style-type: none"> <li>1. Coordinators of Extra- curricular Groups, Student Clubs and Faculty In-charge for college diary and The Physical Director</li> </ol>	<ol style="list-style-type: none"> <li>1. Prepare college diary for the academic year</li> <li>2. Monitor the progress of events as per diary</li> <li>3. Collect and act on feedback of extra-curricular and beyond curricular activities for overall development of students.</li> </ol> <p><b>Committee Scheduled Meetings:</b> Two times a year or as and when needed.</p>

## 8.2.2 Defined rules, procedures, recruitment, and promotional policies, etc (2)

Institute Marks : 2.00

(Instruction: List the published rules, policies, and procedures; year of publications; and state the extent of awareness among the employees/students. Also comment on its availability on Internet, etc.)

**Policy:**

The institution is constantly upgrading its quality of education and increasing the intake. To match changes in existing staff strength (both Teaching & Non-teaching), the human resources are constantly upgraded through fresh recruitments on biannual basis, also during emergencies/exigencies to meet the academic schedule. The institution recruits once in May / June and in Nov / Dec of the academic year.

Following acts and rules are adopted as guidelines for procedures, recruitments, promotional policies, code of conduct issued from time to time by the regulatory bodies:

- Rules for Affiliation by Jawaharlal Nehru Technological University Hyderabad 2011-12
- AICTE Norms
- UGC Norms for autonomous college 2012-2017
- Rules and Bye laws of Society

**Recruitment Procedure:****Teaching Staff:****Cadre Structure for Teaching Staff:**

- (a) Director
- (b) Principal
- (c) Dean -Professor / Associate Professor
- (d) Professor / Associate Professor
- (e) Assistant Professors / Lecturer (Selection Grade)
- (f) Senior Lecturer / Senior Librarian
- (g) Lecturer / Librarian / Director of Physical Education
- (h) Teaching Assistants

**Qualifications:**

Faculty has been recruited based on the qualifications prescribed by the AICTE from time to time. Additionally JNTUH-FET, UGC-CSIR NET, PhD, and Post graduates with Industry Experience are preferred.

For the top administrative position of the Principal, apart from the guidelines given by the AICTE and JNTUH, administrative experience and ratification by the University is taken into consideration.

**Mode of Selection of Teaching Staff:**

Direct recruitment to all cadres is based strictly on merit. Invariably in almost all cases, the following procedure is followed:

- (a) Advertisements are issued in leading newspapers.
- (b) Applications are scrutinized on the fourth day after the last day for receipt of application.
- (c) A Selection Committee is constituted as per Affiliating University and AICTE norms.
- (d) Call letters for interviews are sent to eligible candidates, specifying place, date and time of interview.
- (e) Selection Committee decides and recommends the candidates.
- (f) Letters of appointment are issued to selected candidates.

Sometimes depending on emergency / exigency of the situation, adhoc appointments are made on contract basis for specified periods.

**Non-Teaching Staff:****Cadre Structure for Non-Teaching Staff:****(a) Office**

- Administrative Officer
- Office Superintendent
- Senior Assistant
- Junior Assistant
- Record Assistant/ Data Entry Operator
- Attender

**(b) Labs (other than computer Labs)**

- Lab Assistant
- Lab Technician (Diploma)
- Lab Attender (SSC/Inter/ITI)

**(c) Computer Labs**

- SYSTEM ADMINISTRATION
- Programmer
- Lab Assistant
- Lab Technician

**Qualifications:**

Non-Teaching Staff has been recruited based on the guidelines prescribed by state government.

**Mode of Selection for Non Teaching Staff:**

All positions are advertised in the news papers or notified in the local notice boards. After scrutiny of applications received, a short listing is made by the GRES Secretary / Principal. Interview call letters are sent to eligible candidates to appear for a trade test and subsequent personal interview. The selection committee consists of some or all of the following:

- (a) President / nominee of President of the society
- (b) Principal
- (c) Administrative Head
- (d) HOD of concerned department

- All appointments (Teaching and Non-teaching staff) made after selection, are forwarded to the Chairman for approval and the governing body is notified.
- Management is a single term, used to collectively represent the society through resident of GRES also known as Chief Executive Officer (CEO), Vice President also known as Chief Operations Officer (COO).

**Promotion Policy:****Teaching Staff:**

- Career Advancement Scheme implemented strictly in accordance with AICTE Rules.
- Higher Posts such as Professor and Associate Professor are offered through selection procedure.

**Non-Teaching Staff:**

- Time Bound promotions given to Non-Teaching Staff.
- Promotion to higher post through selection procedure.

**Awareness:**

- The administrative rules and regulations covering all cadres of staff employed also all information relating to roles, powers and administration is mentioned with clarity in the Institutes Administrative Manual/ GRIET Manual.
- The rules and regulations cover general administration, recruitment of staff, service conditions, duties, promotion policies, increments, awards and disciplinary actions etc.
- Syllabus books containing current regulation and rules, Programme and course related information are made available for all students and staff, apart from its availability on the institute Web site www.griet.ac.in.
- Awareness of staff recruitment is made utilizing Newspaper and electronic media and widely broadcasted to attract fresh talents and skills.
- At the time of joining and through periodic departmental meetings and notices, awareness of rules and procedures is being maintained.
- The institute website publishes information on fresh vacancies and appointments for new posts.
- The College Diary, gives the academic calendar and all activities (circular and beyond), and the same information is accessible on the institute web site.

**8.2.3 Decentralisation in working including delegation of financial power and grievance redressal system (3)**

Institute Marks : 3.00

(Instruction: List the names of the faculty members who are administrators/decision makers for various responsibilities. Specify the mechanism and composition of grievance redressal system, including faculty association, staff-union, if any.)

The management of the institute consists of a Governing Body with a panel of members as per norms of Society (GRES), nominees from industry, regulatory bodies such as UGC, AICTE, Affiliating University and the State Government.

**1. Decentralization in working:****(i) Administration**

- The Principal of the college is the head of the institution providing the required leadership to the institution and its system. The principal ensures that all provision of the university bye-laws, statutes and the regulations are observed. He convenes the meetings of the Advisory councils, the Academic council, Board of Studies, Finance committee, Institutional Development and Monitoring Committee, Selection Committee. He also oversees admission of students, recruitment of faculty, curricular co-curricular and extra-curricular activities, student feedback, internal and external assessments, financial implications, course contents.
- B.Tech I Year is monitored by Vice-Principal (I Year) while the B.Tech II, III and IV Year and PG Programmes are monitored by the respective Head of Departments.
- The faculty are actively engaged and involved in decision making process.
- Periodic meetings of HODs of all of the departments and also the intra-departmental meetings, convey and implement decisions taken by the committees and endorsed by management. Senior faculty members are represented in all committees by rotation to enhance administrative experience of all staff. This will help to refine and run the system of administration to continuously sustain, renew and enhance quality of the education by the institution.
- The Senior Administrative Officer oversees the non-academic aspects of Management of the institutes support systems including HR and is assisted by the Administrative Officer and Office Assistants who look after correspondence, admissions, HR, scholarships etc.
- The Finance aspects are looked after by the Finance Officer and are assisted by the Accountant and Deputy Accountant.

- All the examination matters are dealt by Dean of Examinations (DOE) assisted the Controller of Examinations (CE) and by five Assistant Controllers of Examination (ACEs). The duties are delegated to the ACEs to assist the DOE in smooth functioning of both conduct and evaluation of examinations, publishing of result and maintaining records.

## (iii) Departments

- HODs through their departmental committees and coordinators, administer each department's activity.
- Various annual activities, professional bodies and clubs are organized through their respective coordinators. The activities are grouped as given below:

## (a) Academic Activities

S.No	Academic Activity
1	Ist Year B.Tech (All Branches)
2	M.Tech Programme
3	B.Tech (CCC)
4	TASK
5	EDP Cell
6	Technology Cell
7	College Diary
8	College Web Page
9	GRIP
10	Faculty Club
11	Women Development Cell
12	FSW
13	GRIET Alumni Association
14	Gaming Club
15	Robotic Club

## (b) Co-Curricular &amp; Extra-Curricular Activities

S No.	Activity
1	Annual Day
2	Graduation Day
3	NSS
4	Pragnya
5	Pulse
6	Quizzicals
7	Reflections
8	Rhythms
9	Scientific Forestep
10	Souvenir
11	Spices
12	Spirals
13	Sports & Games
14	x-Kernel

## (c) Other Committees

S No	Committee
1	Canteen
2	Editorial
3	Library
4	Public Relations
5	Time Table
6	Transport
7	e-Resources

## (d) Professional Bodies

S No.	Professional Bodies
1	CSI
2	IEEE
3	ISTE
4	SAE
5	SME
6	ICI
7	IEI
8	IETE
9	HMA
10	AIMS

11	TIE
12	BMSI
13	CII
14	CREAM

## II. Delegation of Financial Power

### (i) Director / Principal

Director/ Principal is delegated with financial powers up to a maximum of Rs. 200,000/- for purchase and unplanned up to Rs. 50,000/-

- (a) To authorize purchase of consumables for laboratories over and above the powers of the Head of the Departments.
- (b) To permit reimbursement of traveling and other expenses for official purposes within the permitted limit to be decided by the CEO.
- (c) To entertain guests.
- (d) To sponsor faculty / staff for any academic and co-curricular activities as per norms.
- (e) To authorize any other expenses he may deem essential.

The Principal may in case of any contingency obtain oral permission from the CEO, if the expenditure to be incurred exceeds his powers and get ratified by the CEO along with required receipts.

### (ii) Heads of Departments:

The HODs are delegated with powers up to Rs.25,000/- for sanctioned work and Rs.10,000/- for unplanned work

- (a) To make urgent consumable purchases for Lab.
- (b) To meet small non-recurring expenses.
- (c) To incur any other expense deemed necessary.

### Utilization of financial powers for each of the assessment years:

#### Delegation of Financial Powers

S.No	Account Head	Delegated Amount	Utilization			
			CFY	CFYm1	CFYm2	CFYm3
1	Director /Principal	2,00,000	4,44,925	95,429	Nil	35,000
2	Head of Department / Programme	25,000				

(\*to be filled in from HODs accounts)

## III. Grievance Redressal Cell

All grievances of staff and students are to be redressed expeditiously, and each member is a key stakeholder of the organization. Any grievance reported verbally or written will be appropriately dealt with by the concerned Head of the Department. However, the aggrieved, if so desires or feels that his/her grievance is not redressed satisfactorily, can approach the Grievance Redressal Cell for Redressal. The composition of Cell is as follows:

#### Chairman

- Vice President, Governing Body

#### Members

- Director
- Principal
- Dean Student Affairs
- Dean Faculty Development
- Dean Discipline

The Grievance Redressal cell delegates to three other sub committees to deal with specific complaints, which are described as follows:

### (i) Discipline Committee

The main role of discipline cell is to address the complaints from Student and Staff.

Self-discipline is primarily desirable, and all members in the institutions environment are expected to adhere to rules and regulations in an ideal situation. Any aberrations in this regard are to be referred to the Discipline Committee, who should dispose of the case expeditiously. All discipline matters of students and matters related to Teaching and non-Teaching staff are to be referred to Discipline Committee, consisting of:

#### Chairman

- Dean Discipline

#### Members

- Dean Student Affairs
- Physical Director
- Two faculty Members nominated by the Principal

- HOD of concerned member staff/student
- Student member/Non-teaching staff member

### (ii) Anti-ragging Committee

Ragging involves an act by senior students in baiting or bullying new students. Though a Universal phenomena, it often takes a malignant form wherein the newcomers may be subjected to psychological or physical discomfort or harassment.

To prevent and deter such incidents in Higher Educational Institutions, the Government of India has taken serious view on the cases of ragging. The other effective steps taken by the Government include notification of anti-ragging regulations by regulatory authorities viz. All Indian Council for Technical Education (AICTE) and University Grants Commission (UGC) vide F.1-16/2009(CPP-II) dated 21 October 2009. The media campaign started by Government since 2009 through print, audio/visual has created awareness throughout the country is reiterated every year.

Anti-ragging Committee members are as below:

- Principal
- Dean Discipline
- Circle Inspector of Police of Local Police Station
- Dean Student Affairs
- Dean Academic Affairs
- Physical Director
- Senior Administrative Officer
- Students Members one from each Programme

GRIET follows the notification strictly and implements to protect its academic atmosphere from being marred by the acts of ragging. GRIET follows a three pronged approach of Awareness, Avoidance & Action. All direct approaches of talking to students in addition to using various media to make aware of the bad effects and strict punishments if indulged in. Under Avoidance it has instituted Anti Ragging squads under the Anti Ragging Committee to prevent ragging at the time of joining and continues the monitoring through the first year session. It also procedurally segregates Instructions, Travel and Canteen timings respectively. Any cases of ragging observed are to be referred to Disciplinary Committee for appropriate action. The students/parents are required to submit anti-ragging related affidavit to the Institute at the time of admissions.

### (iii) Anti Sexual Harassment Cell

The Honorable Supreme Court in the case of Vishaka and Others Vs State of Rajasthan and Others (JT1997 (7) SC 384), has laid down guidelines and norms to be observed to prevent sexual harassment of working women. These are ingrained in the Government of India CCS Conduct Rules [Rule 3 (1) (iii)] in the light of misconduct which attracts appropriate disciplinary action at work place and where ever such conduct amounts to a specific offence under IPC the concerned authorities can initiate appropriate action under the law. Being a private academic institution GRIET is also within the purview of the law and its jurisdiction as UGC in its notification F.No.14-4/ 2012 (CPP-II) of December 2012 has formulated regulations in the letter (Para 1.1 and 1.2, which also applies to institutions recognized under Clause (f) of Section 2 of UGC act 1956).

At GRIET, the Principal has constituted the Anti Sexual Harassment Cell for prevention of sexual harassment in the campus, and the cell is empowered to deal with cases concerning sexual harassment of women staff and students and hence will function as a sub-committee of the institute.

The list of members and terms of references are given below:-

1. Chairperson
2. Faculty members from all departments
3. Senior Administrative Office
4. Co-opted Members
  1. Social Activist
  2. Student Representative
  3. Non-teaching Staff Representative

- To deal appropriately with reported cases of sexual harassment, abuse or discrimination, and initiate action against particular grievances in respect of unfair treatment due to gender bias.
- The Anti Sexual Harassment Cell is responsible for initiating the necessary process of inquest on receipt of complaint from the dean Discipline.
- In case of the complaint is against any staff member of the committee then the Principal shall nominate appropriate Chair or member for the enquiry.
- The Anti Sexual Harassment Cell arbitrates sexual harassment cases, complete with provisions to recommend suitable punishment of the guilty to the Grievance Cell for further action.
- The guidelines have provisions depending on the different degrees of fault or offence-Minor, Moderate or Major, there are different degrees of a "punishment" to deal with such offences

Tools to respond to offences include (1) Communication of the standard, (2) Disapproval, (3) Verbal warning, (4) Written warning, (5) Suspension/ Rustication of the guilty parties, (6) Termination of employment, in order to protect complainants from victimization.

- The guidelines followed are meant to act as a deterrent, and that this cell can be effective only influence suitable attitudinal change.

## IV. Womens Development Cell

The activity of WDC addresses problems of women employees and empowerment of women.

### (i) History & Inception

The JNTUniversity Hyderabad, makes it mandatory for all affiliated colleges to have a Womens Development Cell and gives guidelines to the college establishment relating to functioning of gender issues cells (2001). Following in the footsteps of the JNT University, Gokaraju Rangaraju Institute of Engineering & Technology also has established a Womens Development Cell.

### (ii) Scope

The Womens Development Cell of GRIET purports to conduct activities for the students, teachers and administrative / supporting staff of the college at 3 levels- Apex, College and Departmental levels. Activities at the Institutional Apex, level will aim at the community at large, the focus being on providing community interaction and meaningful humanitarian experience to students and teachers. It will also interact with governmental social bodies that address womens issue such as sexual harassment verbal or physical in nature.

### (iii) Objectives

- Create awareness on equal opportunity for women that will ultimately lead to improved attitude and behavior.
- To raise awareness vide lectures/ workshops for GRIET women students and staff members on different aspects of womens welfare.
- Bring about attitudinal and behavioral change in adolescent youth of the female gender.
- To discuss and suggest methods to promote gender amity amongst all GRIET women employees and students.
- Conduct programmes for ladies to empower them physically, emotionally, mentally and financially.
- To educate the women students to break out of social impediments and to convince them to come forward with problems and complaints.
- Provide a harassment free working atmosphere, by identifying and fixing responsibility on the concerned persons for ensuring equal treatment of and participation by women in all areas.
- To consider any other matter on womens issues referred to the cell.

**(iv) Constitution of the Womens Development Cell:**

**1. Coordinator** Lady Faculty

**2. Members**

Dean Faculty Development

Dean Student Affairs

Senior Lady Faculty

**3. Co-opted members**

Lady Faculty

Female Student

**(v) Programmes/Activities:**

In order to achieve the stated goals, the following programmes will be conducted / celebrated.

March 8 Womens Day

April 7 - Health Day

Lectures will be organized, as per convenient timings, on adolescent health issues, womens professional problems, womens domestic / personal problems due to work-place pressures, and gender discrimination at different levels. Competitions such as Quiz, Debates and, Elocution competitions will be held besides activities of interest to ladies such as Rangoli, Mehendi, and Cooking etc.

**V. Malpractice Prevention Committee:**

A Malpractice Prevention Committee shall be constituted to examine and punish the students who indulge in malpractice/ behave in an undisciplined way in examinations as per the punishment guidelines approved by the Academic Council.

**Composition**

- The Principal
- Controller of Examinations of the college
- Observer/ Invigilator
- Subject Expert (case/offence dependent)
- Head of Department of concerned candidate

**8.2.4 Transparency and availability of correct/unambiguous information (3)**

Institute Marks : 3.00

(Instruction: Availability and dissemination of information through the Internet. Information provisioning in accordance with the Right to Information Act, 2005).

- Personal information, qualifications, professional skills and experience are taken from new recruits at the time of joining and used to leverage the strengths of the departments and the institute.
- The data of all staff are periodically collected and updated, the teaching faculty information is uploaded on the college web site.
- The administrative rules and regulations covering all cadre of staff employed is mentioned with clarity in the GRIET Manual which is updated. This manual is available with all the administrative heads as well as Head of Departments. Transparency is maintained relating to rules followed which include general administration, recruitment of staff, service conditions, duties, promotion policies, increments and awards and disciplinary actions.
- Recruitment and interview of all staff is done by issuing advertisements in leading local and national News papers and on college web site.
- The Selection Committee chaired by the Chairman, Governing Body or his nominee, the Principal, subject experts, Head of Departments and nominee of affiliating university form the constituent members and the recruitment and the short listed candidates are intimated by telephone and e mail.
- Recruited teaching faculty are interviewed and ratified by the University Ratification Committee and the result is intimated.
- All activities at the institute are recorded and posted on the institute web site.
- Periodic meetings of the Governing Body, Academic Council, Board of Studies are recorded as minutes of the meeting and the decisions and ratifications are handed down to the department levels. The departments in turn intimate the faculty members during the Departmental meetings. All administrative meetings held are recorded for transparency in order to maintain unambiguity.
- Mobile phone Short Messaging Service (SMS) are also effectively utilized to alert Students, staff, and other stake holders.
- All schedules are displayed on the Notice Boards, College Diary and the Web site. The College Diary gives the academic calendar and all activities (curricular and beyond) and the same can be accessed through the college web site.
- The Academic Regulations and Syllabus give transparency in implementing academic plans and gives information on the current regulations in force and its rules, credits, courses, attendance, examination etc. this information is available on the college web site.
- All relevant documents of the administrative and academic processes are displayed and available for inspections by several regulatory bodies such as the Affiliating University Task Force, State Government Task Force/ Committee, AICTE, NAAC, UGC and NBA teams. It is also available for corporate entities who recruit students, such as TCS, Infosys etc.
- The mandatory disclosure presented on the website provides all the academic details including the academic regulations and syllabus
- There are notice boards in all the blocks through which information is made available to the staff and students and very significant circulars are sent to the classrooms.

**8.3 Budget Allocation, Utilisation, and Public Accounting (10)**

**Total Marks : 10.00**

Summary of current financial year's budget and the actual expenditure incurred (exclusively for the institution) for three previous financial years.

(Instruction: The preceding list of items is not exhaustive. One may add other relevant items if applicable.)

Item	Budgeted in 2015-2016	Expenses in 2015-2016	Expenses in 2014-2015	Expenses in 2013-2014
Infrastructure built-up	55000000	63030000	5149000	4864000
Library	5000000	3228000	3790000	4131000
Laboratory equipment	35750000	27512000	28591000	11512000
Laboratory consumables	3900000	2465000	1311000	1049000
Teaching and non-teaching staff salary	248000000	251567000	192349000	153681000
R&D	3305000	6037000	1800000	1655000
Training and Travel	6500000	4969000	1356000	1017000
Maintenance and Spares	25100000	2329000	5484000	6524000
Other equipments	29000000	17167000	13603000	14587000
Others	42500000	51332000	67279000	53944000
Total	454055000	429636000	320712000	252964000

8.3.1 Adequacy of budget allocation (4)

Institute Marks : 4.00

(Instruction: Here the institution needs to justify that the budget allocated over the years was adequate.)

GRIET follows the process of distributing the available financial resources to departments in a manner consistent with our institutes vision, mission, long-term goals which is transparent to stakeholders. The allocation model is updated annually and will continue to serve as the allocation instrument. Keeping in view that no budgeting process is perfect and that ideally there would be more funds to allocate, the goals of the process are to:

- Recognize the importance of staff to our long term success
- Encourage areas to focus on outputs directly related to our strategic plan
- Improve instructional and support facilities to make the learning environment vibrant
- Increase Research and Development

The institute allocates the available resources to the departments based on the forecasted requirements of the departments keeping the curricular and beyond curricular activities, R&D, Library, Transport, Welfare and Maintenance. It is the responsibility of the Departmental Development and Monitoring Committee (DDMC) to ensure the allocated resources are expended as per their forecasted plans. The emphasis will be to increase quality of academic inputs delivered and positively contribute to the institute in terms of development of new technologies, methods and practices.

8.3.2 Utilisation of allocated funds (5)

Institute Marks : 5.00

(Instruction: Here the institution needs to state how the budget was utilised during the last three years.)

The respective academic and supportive units are informed on allocation of funds under various heads. At the department level, the DDMC decides the utilization for the financial years allocated funds following the purchase procedures.

Purchases are done up to the level of allocated funds, however under some special priority considerations, the purchases can go beyond the allocated funds which will be later ratified by the Governing Body. Delegation of financial powers done to keep the autonomy of the departments and reduce time delays.

Regular auditing and inventory checks keep the mechanism free from over or unjust spending.

8.3.3 Availability of the audited statements on the institute's website (1)

Institute Marks : 1.00

(Instruction: Here the institution needs to state whether the audited statements are available on its website.)

YES, the Audited statements are available on GRIET website [www.griet.ac.in](http://www.griet.ac.in)

#### 8.4 Programme Specific Budget Allocation, Utilisation (10)

Total Marks : 10.00

Summary of budget for the CFY and the actual expenditure incurred in the CFYm1 and CFYm2 (exclusively for this programme in the department):

Items	Budgeted in 2015-2016	Actual Expenses in 2015-2016	Budgeted in 2014-2015	Actual Expenses in 2014-2015	Budgeted in 2013-2014	Actual Expenses in 2013-2014
Laboratory equipment	3000000	863000	3000000	2937000	2000000	950000
Software	550000	630000	500000	478000	200000	57000
R&D	200000	2688000	200000	0	200000	0
Laboratory consumables	500000	749000	450000	113000	200000	51000
Maintenance and spares	3000000	3103000	2700000	1850000	1000000	512000
Training and Travel	500000	451000	450000	117000	300000	80000
Miscellaneous expenses for academic activities	900000	844000	950000	471000	500000	290000
Total	8650000	9328000	8250000	5966000	4400000	1940000

8.4.1 Adequacy of budget allocation (5)

Institute Marks : 5.00

(Instruction: Here the institution needs to justify that the budget allocated over the years was adequate.)

The process of analyzing the adequacy of budget allocation involves the analysis of information pertaining to each item of the budget with respect to the priorities and policies set out by the institution. The priorities of the organization are:-

1. Improvement in the quality of education.
2. Development of infrastructure including classrooms, teaching aids and student facilities in classroom.



3. Research and Development.
4. Addition of latest Laboratory equipment.
5. Addition of resources in the Library.

In this regard, by comparing the priorities set out with the allocations made, it can be informed that the items included are in line with the policies and long term goals of the institution.

(\*\*to be quoted as below as per expenditure under various heads of the programme vis-a-vis preceding years)

For, **example**, the budget in the year 2015-16, half of the budget amount was allocated towards the laboratory equipment. This was due to improvement of laboratories to enhance the technical skills.

Another substantial spending amount was for building infrastructure making GRIET one of the leading institutions having state of the art infrastructure. Institutional infrastructure is the key and the base to provide quality environment, similarly emphasis is given towards development of laboratory equipment and resources.

R&D is the next key area where major funds are allocated for projects, patents and tie-ups.

A good emphasis is given on training both teaching and non-teaching staff by conducting FDPs and workshops in the college and also encouraging staff to attend FDPs, workshops and conferences outside the institution with sufficient funds. Hence it can be interpreted that the allocated funds are very much in line with the priorities set out by the institution.

8.4.2 Utilisation of allocated funds (5)

Institute Marks : 5.00

(Instruction: Here the institution needs to state how the budget was utilised during the last three years.)

The allocated funds act as guideline towards making purchase of lab equipment, programme conduction, training activities and other miscellaneous needs. The department conducts regular meeting to see that the allocated funds are properly utilized for the projection and plans.

The allocated funds are utilized as per the priorities set at the department level. The emphasis is on increasing quality of academic inputs delivered and positively contributes to the Institute in terms of development of new technologies, methods and practices.

For example, in the year 2015-16, the institute increased spending by 31% over last expenditure on infrastructure, books and periodicals, laboratory equipment, recruitment of quality faculty, training of senior faculty members. Emphasis is given on training both teaching and non-teaching staff by conducting FDPs and workshops in the college and also encouraging staff to attend FDPs, workshops and conferences outside the institution with sufficient funds. Hence it can be interpreted that the allocated funds are very much in line with the priorities set out by the institution. This is for continuous improvement of quality literature for teaching and laboratories and to enhance the teaching and technical skills as an investment towards teaching and learning process. The increase in expenditure is observed compared to the preceding years.

GRIET management is a forerunner in terms of providing the best and updated infrastructural facilities to its staff and students and also in facilitating funds for the purpose of improving quality of teaching and research. Departments make optimum utilization of this attitude and policy of the management by utilizing the funds allocated by spending it in lines with the mission and objectives.

## 8.5 Library (20)

**Total Marks : 20.00**

8.5.1 Library space and ambience, timings and usage, availability of a qualified librarian and other staff, library automation, online access, networking, etc (5)

Institute Marks : 5.00

(Instruction: Provide information on the following items).

• Library Services	Yes
• Carpet area of library (in m2)	1670
• Reading space (in m2)	1355
• Number of seats in reading space	300
• Number of users (issue book) per day	200
• Number of users (reading space) per day	300
• Timings: During working day, weekend, and vacation	8 AM to 8 PM
• Number of library staff	08
• Number of library staff with degree in Library	04
• Management Computerisation for search, indexing, issue/return records Bar coding used	

At present the Library Information Center uses in-house developed Library Management Software

- Library services on Internet/Intranet INDEST or other similar membership Archives

The following Library services are present on Internet / Intranet.

At present the Library Information Center uses in-house developed Library Management Software with the following functions automated

- Circulation Section Issue / Return using bar codes and code reader
- Information Retrieval Services
- Which includes searching of data and retrieval of data using various search options like title, author, subject, publisher etc.
- Recently barcoding of library holdings was taken up and successfully completed.

### Library Services on internet / intranet, membership archives

1. NPTEL (National Programme for Technology Enhanced Learning) lessons are procured and are available all over campus through intranet at link <http://172.16.0.88> LocalG that can be accessed from any system with LAN connection. These lessons are stored at IBM server of library with capacity of 3TB.
2. DELNET (Developing Library Network): GRIET Library is a member of DELNET through which services such as Inter Library Loan (ILL) facility is available. Through this, a book or a document or a part of a document / article can be procured from any member library throughout India.

- **Links to E-Journals / Databases**

The following e-resources / online e-Journals Packages of various publishers can be accessed from any computer (with internet) connected to the campus LAN including Library. IP based access to the subscribed journals are provided through these resources.

1. IEEE Xplore - Transactions & Magazines (for CSE, ECE, EEE, IT Dept.) <http://www.ieee.org>
2. ELSEVIER - Science Direct (for Engineering) <http://www.sciencedirect.com>
3. ASCE Digital library (for Civil Dept.) <http://ascelibrary.org>
4. ASME Digital Library Online : (for Mechanical Dept.) <http://asmedl.org>
5. Springer link: (for CSE, ECE, EEE, IT Depts.) <http://springerlink.com/journals>
6. McGraw-Hills Access Engineering (for Engineering) <http://accessengineeringlibrary.com>
7. J-Gate Engineering and Technology (JET) (for Engineering & Technology) <http://jgateplus.com>
8. ASTM Digital Library (for Engineering) <http://enterprise.astm.org>
9. J-Gate Social and Management Sciences (JSMS) (for Management Sciences) <http://jgateplus.com>
10. EBSCO-BSA (for Management Sciences) <http://www.search.ebscohost.com>

S.No	Package	No of Journals	Back files up to
1	IEEE-ASPP	145	2000
2	ASCE	34	1983
3	McGraw Hill	Access Engineering-274 titles	All
4	Springer-EEE,ECE,CSE	149 (Titles Collection)	1997
5	ASME	26	2000
6	J-Gate (E & T)	1700	2001
7	Elsevier-Science Direct	275(Engineering & Computer Sci.)	2000
8	ASTM	Digital Library	complete
9	J-Gate Management Science	2000	2001
10	EBSCO-BSA	1102 titles	

## 8.5.2 Titles and volumes per title (4)

Institute Marks : 4.00

Year	Number Of New Titles Added	Number Of New Editions Added	Number Of New Volumes Added
2013-2014	655	475	4764
2014-2015	395	230	1572
2015-2016	830	265	5600

## 8.5.3 Scholarly journal subscription (3)

Institute Marks : 3.00

Year	No. of Technical Magazines/Periodicals	No. of Total Technical Journals subscribed		Scholarly Journal Titles(in originals, reprints)
		In Hardcopy	In Softcopy	
2015-2016	249	249	6849	6849
2014-2015	293	293	6849	6849
2013-2014	300	300	300	300
2012-2013	300	300	8412	300

## 8.5.4 Digital Library (3)

Institute Marks : 3.00

- Digital Library Services Yes
- Availability of digital library contents (If available, then mention number of courses, number of e-books, etc. Availability of an exclusive server) YES; 260 NPTEL
- Availability of an exclusive server YES
- Availability over Intranet/Internet YES
- Availability of exclusive space/room YES
- Number of users per day 200

## 8.5.5 Library expenditure on books, magazines/journals, and miscellaneous contents (5)

Institute Marks : 5.00

Year	Expenditure (in Rs.)				Comments, If Any
	Book	Magazines/Journals (for hard copy subscription)	Magazines/Journals (for soft copy subscription)	Misc. Contents	
2013-2014	19.06	6	16.2	-	-
2014-2015	15.13	6.75	20.2	2	-
2015-2016	16.92	5.91	23.09	-	-

## 8.6 Internet (5)

Total Marks : 5.00

Institute Marks : 5.00

(Instruction: The institute may report the availability of Internet in the campus and its quality of service.)

- Internet Services Yes
- Name of the Internet provider AIRTEL
- Available bandwidth 65 Mbps
- Access speed 100 Mbps
- Availability of Internet in an exclusive lab Yes
- Availability in most computing labs Yes

• Availability in departments and other units	Yes
• Availability in faculty rooms	Yes
• Institute's own e-mail facility to faculty/students	Yes
• Security/privacy to e-mail/Internet users	Yes

- The institute is currently subscribed with the service provider "Bharti Airtel" for the internet services.
- Wi-Fi routers in all vantage points connecting all registered laptops in the departments and faculty rooms.
- The same network is used for institutes intra-mail.
- The network is secure in that it has its own firewalls and anti-virus/worm programmes to protect vital institute information and database apart from confidential emails of all its users.

## 8.7 Safety Norms and Checks (5)

**Total Marks : 5.00**

### 8.7.1 Checks for wiring and electrical installations for leakage and earthing (1)

Institute Marks : 1.00

- Institute buildings are well designed with proper electrical installations.
- Special care is taken at the time of installation by using quality certified components in terms of wiring, switches, plugs and circuit breakers.
- Monthly maintenance is done which includes arrest of any leakage, working condition check for lighting conductor, earthing / grounding system checks and inspection of electrical installations for safety.
- Separate Electrical Maintenance is monitored by the Maintenance & Safety Officer with a dedicated team to deal with routine and emergency maintenance.

### 8.7.2 Fire-fighting measurements: Effective safety arrangements with emergency / multiple exits and ventilation/exhausts in auditoriums and large classrooms/laboratories, fire-fighting equipment and training, availability of water, and such other facilities (1)

Institute Marks : 1.00

- Institute buildings are designed with adequate light, ventilation, stairs, corridors, pathways, multiple / wide staircases and all round approach.
- Pathways, corridors and stairs are wide enough to handle emergencies.
- Large size class rooms, Seminar halls and laboratories have two exits.
- Laboratories handling chemicals have adequate ventilation and exhaust facilities.
- Fire extinguishers are provided at key points in all buildings.
- First Aid facility is available in all emergencies.
- Each building is being provided with automatic alarm system with water tanks and fire prevention system.
- Safety instructions are prominently displayed throughout the college.

Quarterly maintenance drills are done for awareness and familiarity with hazards and safety actions in case of emergencies

### 8.7.3 Safety of civil structure (1)

Institute Marks : 1.00

#### Details of the measures taken for the safety of civil structures are given below:

- Buildings are well designed by expert architects and qualified structural engineers
- Quarterly inspection is carried out for the safety of civil structures
- Adequate maintenance is done by taking care of painting and white-wash, crack filling, water logging, and leakages

### 8.7.4 Handling of hazardous chemicals and such other activities (2)

Institute Marks : 2.00

(Instruction: The institution may provide evidence that it is taking enough measures for the safety of the civil structures, fire, electrical installations, wiring, and safety of handling and disposal of hazardous substances. Moreover, the institution needs to show the effectiveness of the measures that it has developed to accomplish these tasks.)

#### Safety measures taken for handling hazardous materials are given below:

- Safety precautions such as shoes, aprons, safety glasses are insisted upon for staff and students.
- Special drives are done to collect electronic wastage.
- Awareness of safety precautions for handling chemicals is done every semester.

## 8.8 Counselling and Emergency Medical Care and First-aid (5)

**Total Marks : 5.00**

### 8.8.1 Availability of counselling facility (1)

Institute Marks : 1.00

(Instruction: The institution needs to report the availability of the facilities discussed here.)

- An experienced counselor Ms. Revathi Thuraga, life member of the International Association of Holistic Psychology (IAHP), is being consulted whenever needed
- Dean Career Guidance and Counseling, GRIET deals with students and parents by giving counseling and motivating them in all aspects.

### 8.8.2 Arrangement for emergency medical care (2)

Institute Marks : 2.00

(Instruction: The institution needs to report the availability of the facilities discussed here.)

Medical facility within the Institution:

- A qualified medical practitioner is available every day between 8:00 am and 1:00 pm on the campus medical centre.
- He is being assisted by a qualified medical assistant, who is available throughout the college working hours

#### Medical facility nearby:

- College is being situated at a distance of 4.5 km from busy KPHB (Kukatpally Housing Board) area. Even the connecting road called Nizampet Road is densely populated with all medical facilities doctors, clinics, pharmaceuticals & diagnostic centres.
- Nearest Hospitals: Apollo- 2 km, Remedy Hospitals-4.5 km at KPHB (Multi Specialty Hospital with good emergency facilities)
- Many private practitioners of every speciality are available at 1.5 km.
- Number of ambulances within the Institution : **one**
- Facility in ambulances : **First Aid**
- Response-time in calling ambulance services from outside : **7-10mins**
- College has a fleet of 32 buses, LMVs which can be used to ferry people in emergency as and when needed.

Remedy Hospitals Ambulances and 108 EMRI-State Ambulance facility situated at Kukatpally Police station which is at 4 km, have very good track record of response time in meeting the emergencies. The journey time is involved in response to any emergency calls which is around 7-10 mins.

8.8.3 Availability of first-aid unit (2)

Institute Marks : 2.00

(Instruction: The institution needs to report the availability of the facilities discussed here.)

- College Medical centre provide first aid facility equipped with 4 beds, wheel chair, stretcher facility, consulting room with all emergency care and medical centre facility.
- The Medical Center consists of Emergency Medical equipment such as ECG, EMG machines, Pace Maker, Holter Monitor
- It is open throughout college working hours including sports periods.

### 9 Continuous Improvement (75)

**Total Marks : 63.49**

**This criterion essentially evaluates the improvement of the different indices that have already been discussed in earlier sections.**

#### 9.1 Improvement in Success Index of Students (5)

**Total Marks : 4.53**

Institute Marks : 4.53

From 4.1

a, b and c are the success indices which correspond to LYGm2, LYGm1 and LYG respectively

Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2011-2012(c)	2010-2011(b)	2009-2010(a)	Assessment
Success Index	0.92	0.88	0.91	4.53

#### 9.2 Improvement in Academic Performance Index of Students (5)

**Total Marks : 3.80**

Institute Marks : 3.80

From 4.2

a, b and c are calculated respectively for LYGm2, LYGm1 and LYG by dividing the API values, obtained from the criterion 4.2 by 10 . The maximum value of a, b, and c should not exceed one.

Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2011-2012(c)	2010-2011(b)	2009-2010(a)	Assessment
API	0.75	0.77	0.78	3.80

#### 9.3 Improvement in Student-Teacher Ratio (5)

**Total Marks : 3.68**

Institute Marks : 3.68

From 5.1

a, b and c are calculated respectively for CAYm2, CAYm1 and CAY by dividing the STR values, obtained from the criterion 5.1 by 20. The maximum value of a, b, and c should not exceed one.

Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2015-2016 (c)	2014-2015 (b)	2013-2014 (a)	Assessment
STR	0.74	0.73	0.73	3.68

#### 9.4 Enhancement of Faculty Qualification Index (5)

**Total Marks : 3.90**

Institute Marks : 3.90

From 5.3

a, b and c are calculated respectively for CAYm2, CAYm1 and CAY by dividing the FQI values, obtained from the criterion 5.3 by 10. The maximum value of a, b, and c should not exceed one.

Assessment = (b-a) + (c-b) + (a+b+c)x(5/3)

Items	2015-2016 (c)	2014-2015 (b)	2013-2014 (a)	Assessment
FQI	0.79	0.79	0.72	3.90

### 9.5 Improvement in Faculty Research Publications, R&D Work and Consultancy Work (10)

**Total Marks : 2.58**

Institute Marks : 2.58

From 5.7 & 5.9

a, b and c are calculated respectively for CAYm2, CAYm1 and CAY by dividing the FRP and FRDC values, obtained from the criterion 5.7 and 5.9 by 20. The maximum value of a, b, and c should not exceed one.

Assessment = (b-a) + (c-b) + (a+b+c)x(10/3)

Items	2015-2016 (c)	2014-2015 (b)	2013-2014 (a)	Assessment
FRP	0.32	0.32	0.39	3.50
FRDC	0.00	0.17	0.25	1.65

### 9.6 Continuing Education (10)

**Total Marks : 10.00**

Institute Marks : 10.00

Module Description	Any Other Contributory Institute/Industry	Developed/Organized By	Duration	Resource Persons	Target Audience	Usage and Citation,etc
LABVIEW	GRIET	V.Hima Bindu (Asst.Prof.)	16-02-2015 to 18-02-2015	Vijayaramaraju (Assoc. Prof)	Faculty and Students	Helpful in improvement of education
Teaching Methodology for GRIET Faculty	IIT Bombay	Dr J Praveen(Prof)	11-5-2015 to 12-05-2015	Vijayaramaraju (Assoc. Prof)	Faculty	Helpful in improvement of education
Pedagogy for Effectiveness use of ICT in Engg Education	IIT Bombay	Vijayaramaraju (Assoc. Prof)	5-01-2015 to 7-01- 2015 & 19-01-2015 to 21-2015	Dr J Praveen(Prof)	Faculty	Helpful in improvement of education
Teaching Methodology for GRIET Faculty	GRIET	P.M.Sarma (Prof.)	1 week	P.S.Raju (Director)	Faculty	Helpful in improvement of education
PROTEUS	GRIET	G.Swapna (Asst.Prof.)	5-01-2015 to 6-01 -2015	R Anil Kumar (Asst.Prof.)	M.Tech Students & Faculty	Helpful in improvement of education
Seminar on PLC	GRIET	VVS Madhuri(Asst Prof)	25-05-2015	Dr J Praveen(Prof)	M.Tech Students & Faculty	Helpful in improvement of education
Higher Education and Research in Canada	IIT Bombay	Dr D Padhan(Prof)	10-02-2015	Dr J Praveen(Prof)	M.Tech Students & Faculty	Helpful in improvement of education
Control Systems	IIT Bombay	Dr. D. V. Pushpa Latha(Prof)	2-12-2014 To 12-12- 2014	Vijayaramaraju (Assoc. Prof)	Faculty and Students	Helpful for projects
Seminar on “Android Code Labs”	GRIET	R Anil Kumar (Asst.Prof.)	25102014	Dr J Praveen(Prof)	Faculty and Students	Helpful in improvement of education

### 9.7 New Facility Created (15)

**Total Marks : 15.00**

Institute Marks : 15.00

Module Description	Any other contributory Inst./Industry	Developed /Organized by	Duration	Resource Persons	Target Audience	Usage and citation etc
<b>2015-2016</b>						
	Institution	Dr .D V Pushapa Latha(Prof) M N Sandhya Rani(Asst.Prof) P Sri Vidya Devi (Asst Prof)	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
Model Lift with Siemen's PLC	Institution	P.M.Sarma(Prof) M.Chakravarthy(Prof) V.V.S.Madhuri(Assistant.Prof)	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
Automatic tuning PID Control of DC motor	Institution	Dr .D V Pushapa Latha(Prof) P Sri Vidya Devi (Asst Prof) M .Rekha(Asst Prof)	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
Developed the		Dr .D V Pushapa Latha				Application

electromechanical control	Institution	A Vinay Kumar V Hima Bindu	3 Months	P.S.Raju (Director)	M Tech Students	Subject in industry
Differential Current Protection Using Arduino	Institution	SS Nawaz(Asst Prof) Dr J Praveen (Prof)	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
2014-2015						
Sensors & Measurements Lab	Institution	Dr J Praveen(Prof.) P.Sri Vidya Devi(Asst.Prof.) P Sirisha(Asst.Prof.)	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
Designed & tested 3 phase induction motors of different specifications	Institution	Dr.D. V Pushapa Latha(Prof) B Vasanth Reddy	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
1 Phase Inverter Using NIMy Rio	Institution	Dr J Praveen A Vinay Kumar V Vijaya Rama Raju	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
3 Phase Inverter fed to 3 Phase Induction Motor using Arduino Mega	Institution	Dr J Praveen A Vinay Kumar R Anil Kumar	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry
1 Phase DVR	Institution	Dr J Praveen A Vinay Kumar Dr S V Jayaram Kumar	3 Months	P.S.Raju (Director)	M Tech Students	Application of the Subject in industry

**9.8 Overall Improvements since last accreditation, if any, otherwise, since the commencement of the programme (20)**

**Total Marks : 20.00**

Institute Marks : 20.00

Specify the overall improvement:

Specify the Strengths/Weakness	Improvement Brought In	Contributed By	List the PO(s), which are strengthened	Comments, if any
2015-2016	LABVIEW Acadamy	Dr. J Praveen, V.Vijaya Rama Raju	a,b,c,e,l	State of art laboratory develop on par with the industry
2014-2015	Drives & Power Converters Laboratory	Dr. J Praveen, B. Vasanth	a,b,c,e,l	State of art laboratory develop on par with the industry including LABVIEWS
2013-2014	DSP & Power System Laboratory	Dr .D. V .Pushapa Latha , Dr. J.Sridevi	a,b,c,e,l	State of art laboratory develop on par with the industry
2012-2013	Solar Electrical Laboratory	Prof P.S. Raju, V.Vijaya Rama Raju	a,b,c,e,l	State of art laboratory develop on par with the industry